

MARINE REVIEW.

VOL. XV.

CLEVELAND, O., JANUARY 21, 1897.

No. 4.

Big Insurance Combination.

It is quite evident now that methods of conducting the insurance business of the lakes are to undergo some very important changes with the opening of another season. The recent meeting of the Lake Carriers' Association in Detroit was attended by some of the principals of a combination that is planning to apply modern methods to both hull and cargo insurance on the lakes. For the present, names of the lake promoters of the scheme, as well as the principal companies that will take the business, are withheld, but it is certain that the arrangements are such as to take care of, through one source, the largest risks in both hull and cargo that are offered on the lakes.

Preparations for this combination have been going on for a long time past. It is in their interest that Capt. Herriman, lake representative of the Bureau Veritas, has been carrying on, with a corps of eleven assistants, an inspection of all lake vessels, and is about to publish (not for sale or general distribution, but for the private use of the underwriters) a register, to be known as the "Great Lakes Register," in which each individual ship will be rated according to construction and present condition. Reference to the careful prosecution of work on the register has been made in recent issues of the Review.

The claim held out to vessel owners by the combination will be that through the establishment of the new register better classification of vessels may be made, and for the first time rate making will be based upon consistent theories of underwriting in vogue in the great insurance centers of the world. Finer discriminations as to the relative value of vessels may be made, and in the end worthy vessels may be grouped upon sound rules to the advantage of owners. Inasmuch as the book will include all classes of vessels upon the lakes, it is inferred that owners of wooden vessels will be largely benefited by this scheme, as they will have the same advantages in placing their vessels as those enjoyed by the large iron and steel owners at the present time. In the preparation of the register, Capt. F. D. Herriman holds the office of surveyor-general, with headquarters in the Royal Insurance building, Chicago.

A financial statement to be presented at the annual meeting of the Chicago Ship Building Co., which will be held Jan. 25, will show a surplus of about \$225,000, after the payment of an annual 6 per cent. dividend, which is dispersed half in February and half in August. This surplus is equal to half of the capital stock of the company, which is \$450,000. The company has paid dividends regularly at the rate of 6 per cent. per annum, adding all other earnings to surplus. It is announced that there is not a dollar of bonded or floating debt or other obligations further than current accounts. The output of the company in new ships during 1896 is placed in round numbers at \$1,000,000, and work now under way is valued at \$900,000, insuring a larger business in 1897 than that of the past year.

J. C. Gilchrist of Cleveland is engaged in putting the twenty-four vessels of the fleet of which he is managing owner into two corporations, one of which, already organized, comprises the smaller vessels first acquired by Mr. Gilchrist, and which will be known as the Gilchrist Transportation Co. A name for the second corporation, which will comprise twelve of the better class of vessels, has not as yet been decided upon, but Inland Transportation Co. is talked of. Owners of these vessels are mainly J. C. Gilchrist and his relatives, together with R. E. Schuck of Sandusky.

Mr. G. G. Hadley of Toledo was the only vessel owner who talked of a pool of vessel interests at the recent meeting of the Lake Carriers' Association. He made no announcement of his views on the subject in open session, as he found from conversation with different leading members of the organization that the once popular scheme of a general combination of interests has faded, on account of the close relations that have been brought about, within the past two years, between big shippers and big vessel owners, especially in the ore trade.

An Association of Dredging Interests.

While vessel owners of the lakes were all assembled at the annual meeting of the Lake Carriers' Association in Detroit, representatives of nearly all of the dredging companies were holding a meeting at Indianapolis, Ind. The Indianapolis meeting was quietly arranged, and as a convention to discuss the money question was also being held in that city about the same time, no attention was paid to the gathering of dredging contractors. Now that public announcement has been made of the meeting, there are a number of rumors about its object. It is claimed, of course, that the aim was to effect a combination that would dictate prices on the large amount of work, especially government contracts, that is now being let and will soon be let on the lakes. This the dredging contractors deny this. They declare positively that the meeting was called simply for the purpose of talking over the advisability of organizing some kind of an association that would work along lines similar, for instance, to the Lake Carriers' Association, dealing with matters that affected the general welfare of the dredging business, but not attempting in any way to make prices or interfere with legitimate competition. However this may be, it is certain that no combination to deal with prices and an apportionment of work could have been effected at this single meeting. Such a problem is a big one, as the equipment of lake dredging companies involves an investment of several million dollars, and there is a diversity of interests that could not be brought together without preliminary work that would require lengthy deliberation. But the dredge men insist that there is no intention of undertaking such a task, and that the plans for an association, even of the vessel owners' kind, are as yet only briefly outlined.

Although most of the vessel owners who attended the annual meeting of the Lake Carriers' Association expected that something would be done towards overcoming delays in the coal trade, and that an effort would be made to secure a bill of lading or change of some kind doing away with the shortage abuses in grain, it is more than probable that both of these matters will go over to another year. They were not taken up early enough to be disposed of at the Detroit meeting, and as a result the same old troubles in these lines of trade will be encountered during 1897. They are both important questions requiring united action on the part of all owners, and it is not probable that the executive officers of the association will undertake to dispose of them. The question of grain shortages was, during the last hour of the convention, referred to a special committee, of which Mr. A. B. Wolvin of Duluth is chairman, but it is hardly expected that this committee will make a report upon which any definite action may be taken until next year.

Among articles in the January magazines that will interest readers of the Review is one by Lewis Nixon in the Engineering Magazine on "Progress of Ship Building in the United States." Another in the North American Review by Capt. John Codman is entitled "The Folly of Differential Duties." In the Arena, Wm. W. Bates, ex-commissioner of navigation, writes of "Our Own Ships in the Foreign Trade Essential to Our Prosperity."

There is every reason to place reliance in the report from Pittsburg regarding big purchases of coal lands in the Monongahela valley by the Carnegie interests controlling the new railway from Conneaut to Pittsburg. A return freight from Pennsylvania to the lakes will be required for the Carnegie road, and coal is, of course, the kind of freight that is wanted. It is said that the purchase involves 4,100 acres of coal lands.

The bill putting naphtha launches under the supervision of the steamboat inspection service, and which is known as senate bill No. 1,646, is now a law. This is the compromise measure, which, although requiring naphtha launches of 15 tons and over to carry licensed officers, does not interfere with owners of small launches handling their own boats.

Supplement to THE MARINE REVIEW, Cleveland, Ohio.

Vol. XV., No. 4.

NAME OF MINE.	Prior to 1880	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	TOTALS.	NAME OF MINE.	Prior to 1880	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	TOTALS.
Marquette Range.																			112,933	Menominee Range.																			
American (Sterling)		797	4,702	8,006	3,618	2,916													6,228	Appleton																			
Ames																			801,831	Araguay																			
Barum (B)	435,906	21,522	27,883	41,778	62,752	69,048	47,458	52,975	16,123	10,211	12,835								16,637	Aracuan																			
Bay State	11,919	2,268	653	1,236	631														847	Beaumont																			
Bessie				5,532	18,976	18,960	17,166	17,354	12,829										90,217	Breen	12,071	5,359																	
Beauford																			90,120	Brier Hill																			
Blue																			62,542	Calumet																			
Boston		6,478	14,824	18,242	20,190	2,218													217,730	Chapin	34,556	134,521	247,506	290,972	157,455	198,871	336,128	290,871	518,990	742,843	488,749	690,052	489,134	255,895	618,588	420,518			
Buffalo (A)																			136,636	Clare																			
Branstad	41,588	13,279	21,146	33,386	50,143	73,144	53,913	58,743	74,067	86,789	155,341	80,359	34,662	41,549	30,445	47,218	41,556	85,086	83,163	Columbia (H)																			
Wint'p.	107,423	45,347	44,630	21,005	47,508	59,742	80,796	58,784	41,130	57,861	72,780	80,359	34,662	41,549	30,445	47,218	41,556	85,086	83,163	Commonwealth																			
Cambria	29,500	6,958	19,216	64,543	47,508	59,742	80,796	58,784	41,130	57,861	72,780	80,359	34,662	41,549	30,445	47,218	41,556	85,086	83,163	Concord																			
Champion	718,079	112,401	145,427	159,009	104,960	210,180	173,915	137,593	145,330	174,680	215,098	223,442	133,113	109,979	61,648	42,788	100,397	113,375	3,082,715	Crystal Falls																			
Cheshire (Swansey)	66,528	13,202	15,011	31,498	13,730	3,557		8,328	2,842										217,089	Croft																			
Chico	949	2,415	5,531		117														9,012	Cuddy Quinnesec	67,879	52,436	43,711	44,240	21,676	16,996	14,110	13,442	6,585	3,974									
Cleveland (C)	2,013,762	212,748	198,569	206,120	218,219	225,674	218,757	203,664	207,441	184,316	274,948	331,713	221,788	310,907	218,105	143,706	221,153	513,119	6,123,809	Curry (B)	12,803	21,851	17,334	13,374	3,676	10,079	4,897	14,110	13,442	6,585	3,974								
Columbia (Klorn)	64,212	6,663	11,158	12,066	714														94,813	Cyclops (B)	52,186	14,368	12,644	18,287	22,675	24,999	49,897	37,189	14,267	14,693	6,101	7,301	10,599	1,697					
Curry																			10,671	Delphic																			
Devoit																			140,841	Dunn																			
Devoit																			117,358	Emmett	34,801	31,136	648																
Devoit																			2,000	Fairbank																			
Devoit																			70,942	Greene																			
Devoit																			166,243	Great Western	14,143	100,501	160,155	40,232	22,825	20,710													
Devoit																			893	Groveland																			
Devoit																			8136	Half and Half																			
Devoit																			1,091	Hamil on																			
Devoit																			31,817	Hemlock																			
Devoit																			171,893	Hiawatha																			
Devoit																			16,357	Hollister																			
Devoit																			49,754	Hope																			
Devoit																			110,736	Indiana																			
Devoit																			14,289	Iron River																			
Devoit																			30,673	Keel River																			
Devoit																			723,961	Lee Peak (D)	11,496	19,511	25,425	5,093															
Devoit																			64,206	Lincoln																			
Devoit																			393	Loretto																			
Devoit																			3,461,685	Ludington	8,816	3,374	52,152	102,632	101,165	124,194	74,454	101,653	61,883	116,297	97,355	141,303	15,777	199	354				
Devoit																			7,194,390	Manganite																			
Devoit																			600,592	Mansfield																			
Devoit																			494,280	Mastodon																			
Devoit																			6,359	Metropolitan																			
Devoit																			152,507	Michigan Explo. Co.																			
Devoit																			15,455	Monitor (Lewitt)	4,352	9,500	7,516	7,927	4,627	5,517	1,163	11,124	12,274	39,232	5,889	6,780	12,448	31,139	26,225	42,817			
Devoit																			880,362	Monitor (Lewitt)																			
Devoit																			375,451	Nanticoke																			
Devoit																			150,216	Northern																			
Devoit																			823,822	Norway (G)	80,785	198,165	137,077	165,547	114,836	71,710	67,741	93,785	85,725	87,260	68,044	61,717	4,089	44,767					
Devoit																			12,708	Paint River																			
Devoit																			1,113,102	Penn Iron M'g Co.																			
Devoit																			37,587	Perkins	13,465	49,196	60,406	73,644	76,514	38,120	18,120	12,852	10,834	16,684	12,354	11,971							
Devoit																			299	Perry																			
Devoit																			1,687	Sewabie																			
Devoit																			5,753	Selden																			
Devoit																			22,365	Shelby																			
Devoit																			1,041	South Mastodon																			
Devoit																			59,806	St. Phenomen	798	23,088	10,856																
Devoit																			45,963	Sturgeon River																			
Devoit																			50,114	Volcan (G)	100,367	86,976	85,274	94,042	79,874	101,722	124,125	143,930	205,036	129,541	153,900	104,996	78,967	179,904					
Devoit																			15,409	Walpole																			
Devoit		</																																					

A—Now Queen I. M. Co. F—Succeeds Buffalo Mining Co. B—Now Iron Cliffs. K—Under Clay'd Cliffs I. Co. after 1895. L—Under Clay'd Cliffs I. Co. after 1895. M—Under Clay'd Cliffs I. Co. after 1895. N—Under Clay'd Cliffs I. Co. after 1895. O—Under Clay'd Cliffs I. Co. after 1895. P—Under Clay'd Cliffs I. Co. after 1895. Q—Under Clay'd Cliffs I. Co. after 1895. R—Under Clay'd Cliffs I. Co. after 1895. S—Under Clay'd Cliffs I. Co. after 1895. T—Under Clay'd Cliffs I. Co. after 1895. U—Under Clay'd Cliffs I. Co. after 1895. V—Under Clay'd Cliffs I. Co. after 1895. W—Under Clay'd Cliffs I. Co. after 1895. X—Under Clay'd Cliffs I. Co. after 1895. Y—Under Clay'd Cliffs I. Co. after 1895. Z—Under Clay'd Cliffs I. Co. after 1895.

Ship Yard and Dry Dock Improvements.

Although it is now certain that the Cleveland Ship Building Co. is to go ahead at once with the establishment of a large ship building and dry dock plant at Lorain, having an equipment that will be modern in every respect, the management of the company has given out no details regarding its plans, and will not do so until the whole matter is submitted to the stockholders at the annual meeting, which will be held early next month. The negotiations for a large tract of river front property at Lorain, and the investigations of the Messrs. Wallace regarding tools and ship yard appliances in different parts of the country, were matters that could not be kept quiet, although it is evident that the intention of the management was to have all of the details submitted to the stockholders before an announcement of any kind was made.

It is also definitely understood that the Ship Owners' Dry Dock Co. of Cleveland will expend about \$10,000 in tools for carrying on repairs to steel vessels. This conclusion was reached at the annual meeting of the company, held a few days ago. No change was made in officers or directors, all of whom are re-elected as follows: President, Capt. Thomas Wilson; vice-president, Capt. George Stone; manager and secretary, George L. Quayle; assistant manager, Gustave Cold; directors, Valentine Fries, Capt. Thomas Wilson, J. E. Upson, H. D. Goulder, Robert Wallace, H. D. Coffinberry and Capt. George Stone. It is not expected that the machinery to be purchased with the appropriation of about \$10,000 will be sufficient to undertake big repair jobs, on which rapid work will be expected, but it is thought the investment will be made profitable by numerous small jobs.

The management of the Milwaukee Dry Dock Co. has also concluded to put in machinery that will enable them to repair steel vessels. This will be a new industry in Milwaukee, as that city has not up to this time engaged in either the building or repair of steel vessels. The Milwaukee company has also undertaken the enlargement of the stationary dry dock at its south yard. The dock, which is now 350 feet long, will have 77 feet added, making it 427 feet long.

Where is the Fuel Economy?

Editor Marine Review:—We are pleased to notice in an advertisement of the Globe Iron Works Co. in your valuable paper a very flattering reference to the American liner St. Paul. We think our friendly competitors ought to have admitted that her low consumption of fuel (1.22 pounds per horse power per hour) was in part, at least, due to the fact that her boilers are fitted with the Howden hot draft. We therefore suggest a slight correction in the advertisement, as follows: "The American liner St. Paul's boilers are fitted with the Serve's tubes, and also with the Howden hot draft system." We might also mention the fact that the Serve's tubes have been thoroughly tested by Mr. Howden, but not finding them any better than the plain tube with the Dry Dock Engine Co.'s retarders, he has adopted the latter exclusively in connection with his hot draft system.

Dry Dock Engine Works.

Detroit, Mich., Jan. 18, 1896.

Ship Masters' Association.

Officers of Bay City lodge No. 4, Ship Masters' Association, elected recently to serve during 1897, are: President, C. T. Brown; first vice-president, Jos. G. Sauer; second vice-president, Wm. E. Pierce; treasurer, Henry Bennett; secretary, Thomas Chron; warden, John Stone; marshal, C. M. Saph; sentinel, James Owen; chaplain, Wm. Barrett.

Lodge No. 8 of the same organization, made up of captains at Marine City, reports the following officers: President, Thos. Walker; first vice-president, Wm. Hagan; second vice-president, P. Rice; treasurer, Richard Cotterell; secretary, J. A. Ward; chaplain, Geo. A. Shaw; marshal, Alex. Millen; warden, John Hagan; sentinel, Wm. Rattery.

A note from Bell's Steam Engine Works, Buffalo, announces that they have just furnished one of their steam hammers, largest size, to the Union Dry Dock Co. of Buffalo and will shortly ship one to St. Louis for use in the government shops there, and another to shops on one of the branches of the Great Northern Railway at Sand Coulee, Mont. They have also furnished recently an engine of 18 by 20 inches to Mr. Duncan Armstrong of Port Colborne, Ont., and they are building an engine of 400 horse power, together with other marine work of a lighter kind.

Types of Coast-Built Ships.

A collection of illustrations showing various types of coast-built ships, which is presented on the opposite page, was intended for the large ship building edition of last week, but was crowded out by the extended report of the annual meeting of the Lake Carriers' Association. The principal vessel in the group is the new Cromwell Line steamer Creole, built by the Newport News Ship Building & Dry Dock Co. The Creole is 375 feet over all, 44 feet beam and 32 feet depth, and is a modern steamer in the coast service. Her triple expansion engine has cylinders of 28, 44 and 74 inches diameter with a common stroke of 34 inches. There are three double-ended cylindrical internally-fired boilers. The propeller is of manganese bronze. The ship has, in addition to large freight capacity, accommodations for seventy-five first-class and 150 second-class passengers.

Important Committees.

As there has been some misunderstanding regarding the most important committees appointed at the recent annual meeting of the Lake Carriers' Association, Secretary Keep has thought it advisable to give out the following correct list of the three standing committees of the association, as well as the committee on grain shoveling, and the committee on ore trimming and unloading charges:

Executive and finance committee—James Corrigan, John Mitchell, H. A. Hawgood, Thomas Wilson, M. A. Bradley, J. C. Gilchrist, L. C. Waldo, D. C. Whitney, William P. Henry, J. J. H. Brown, R. P. Fitzgerald, C. W. Elphicke, H. G. Dalton, W. C. Richardson, B. L. Pennington.

Committee on aids to navigation—George P. McKay, W. H. Becker, C. E. Benham, J. G. Keith, W. A. Hawgood, Thomas Wilson, John W. Moore, W. A. Livingstone, W. M. Egan, Frank Owen, A. W. Colton, James Davidson, Alvin Neal, M. M. Drake, Philip Minch.

Committee on legislation—S. D. Caldwell, E. T. Evans, P. P. Miller, H. C. French, Charles Paine, Edward Smith, H. M. Hanna, L. M. Bowers, James Corrigan, W. Livingstone, J. S. Dunham, Jesse Spaulding, C. A. Eddy, Alexander McDougall, Frank J. Firth.

Committee on grain shoveling—James Corrigan, J. C. Gilchrist, H. A. Hawgood, Charles Strasmer, Edward Smith, James McKenzie, James Davidson.

Committee on ore trimming and unloading—M. A. Bradley, B. L. Pennington, M. M. Drake, Fred Palmer, John Corrigan.

To Fuel on the Fly.

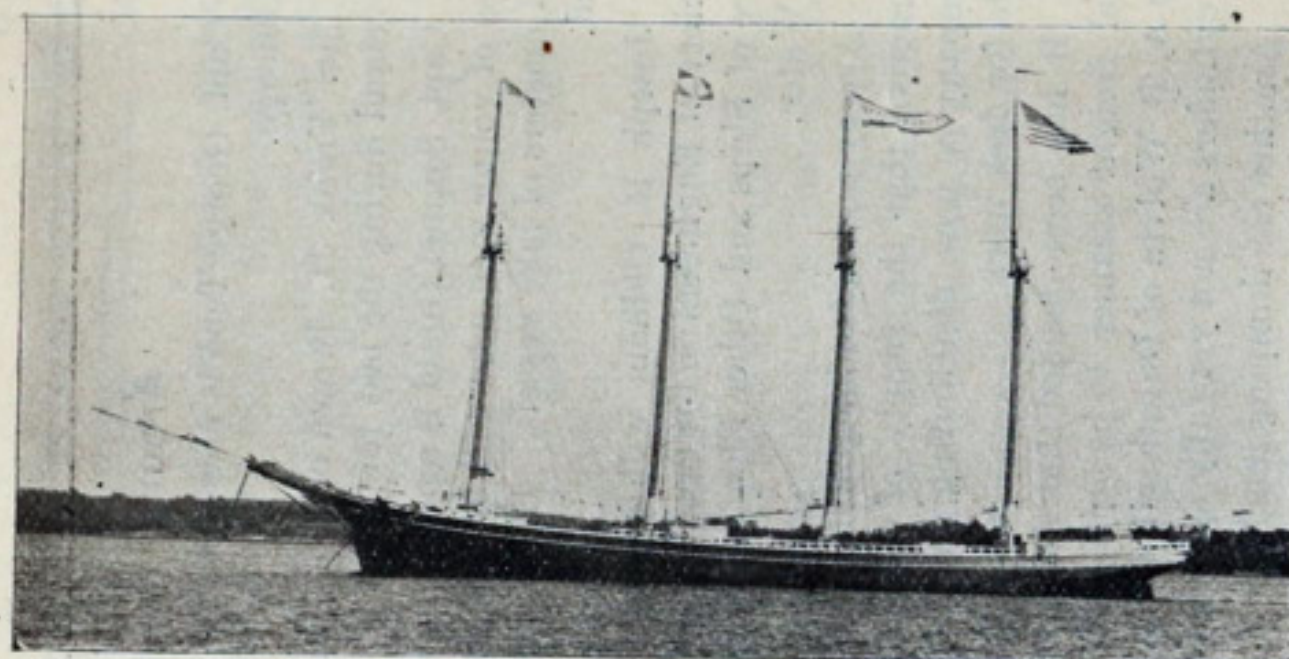
The Thompson Towing Co., Port Huron, Mich., is planning to fuel lake steamers in the St. Clair river without stopping them. There is considerable question as to the scheme being practical, but if it proves so it is only an indication of what vessel owners will be asking soon in order that their steamers may make quick trips. The Thompson company is converting the barge H. F. Church into a coaling barge and lighter, and will equip it with a McMyler derrick. The barge will carry fifteen one-ton buckets. The plan is to tow the barge alongside passing steamers, make it fast and transfer the coal to the steamer while she is going on her way at her ordinary speed.

Demoralization of the bituminous coal trade in Ohio has resulted in two of the Ohio coal railways going into the hands of receivers within the past few days. The roads are the Wheeling & Lake Erie and the Columbus, Sandusky & Hocking. These failures were not unexpected, and in the case of the Wheeling & Lake Erie there is not a great deal of sympathy from coal men, on account of the part taken by that railway in cutting rates.

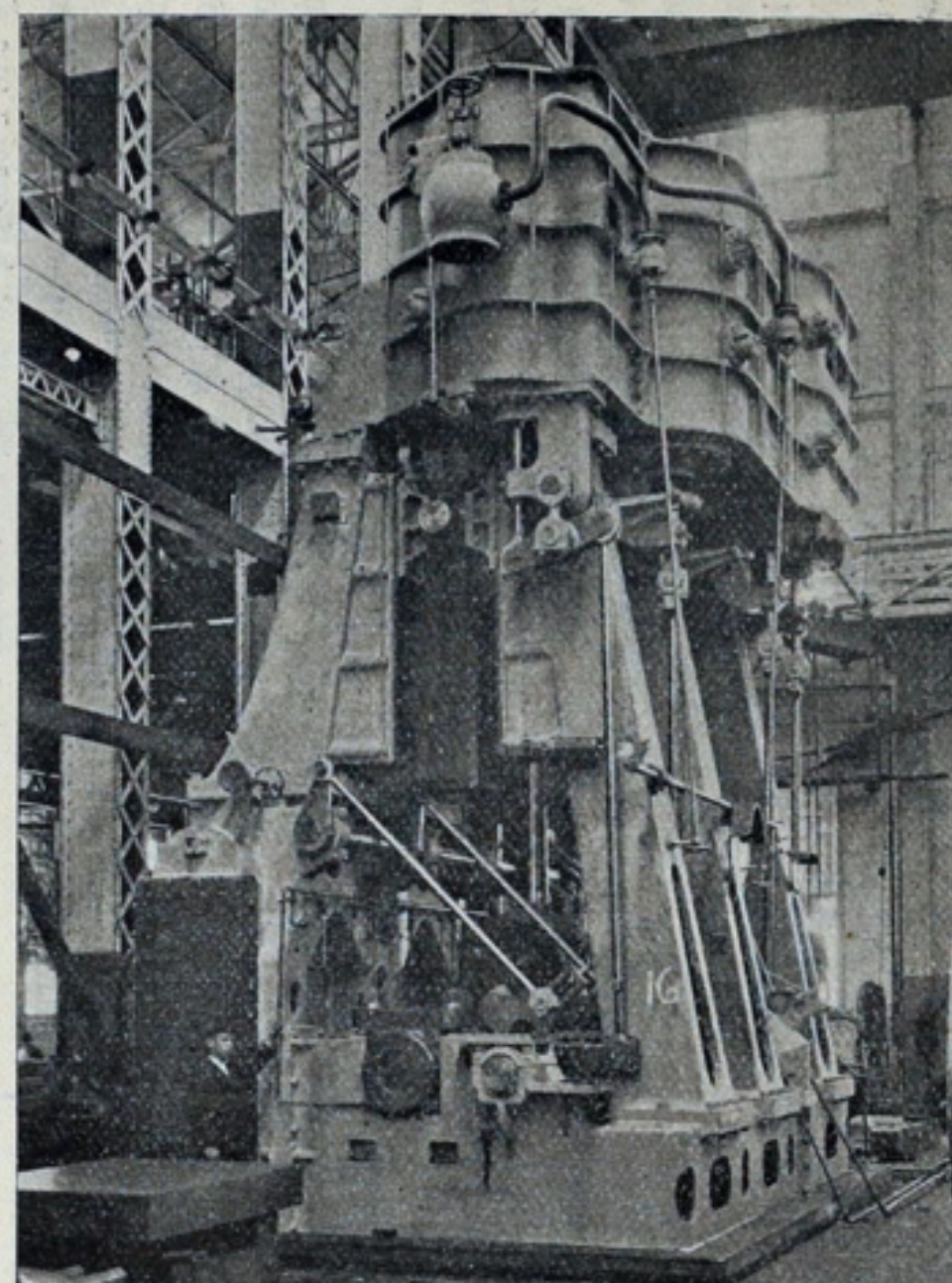
Some Detroit vessel owners are said to be bothering themselves about Gen. Alger's connection with the cabinet of the incoming administration, in view of his support of a Detroit river bridge, due to railway associations. This speculation seems rather far-fetched, especially in view of the fact that there are some people close to official resources in Cleveland who assert positively that Gen. Alger will not be in the cabinet.

An engineer who is at Duluth superintending repairs on a big steamship says: "They used to tell me a pig's nose never wore out but I see they are putting new noses in several of the pigs up here this winter."

TYPES OF COAST-BUILT CRAFT.



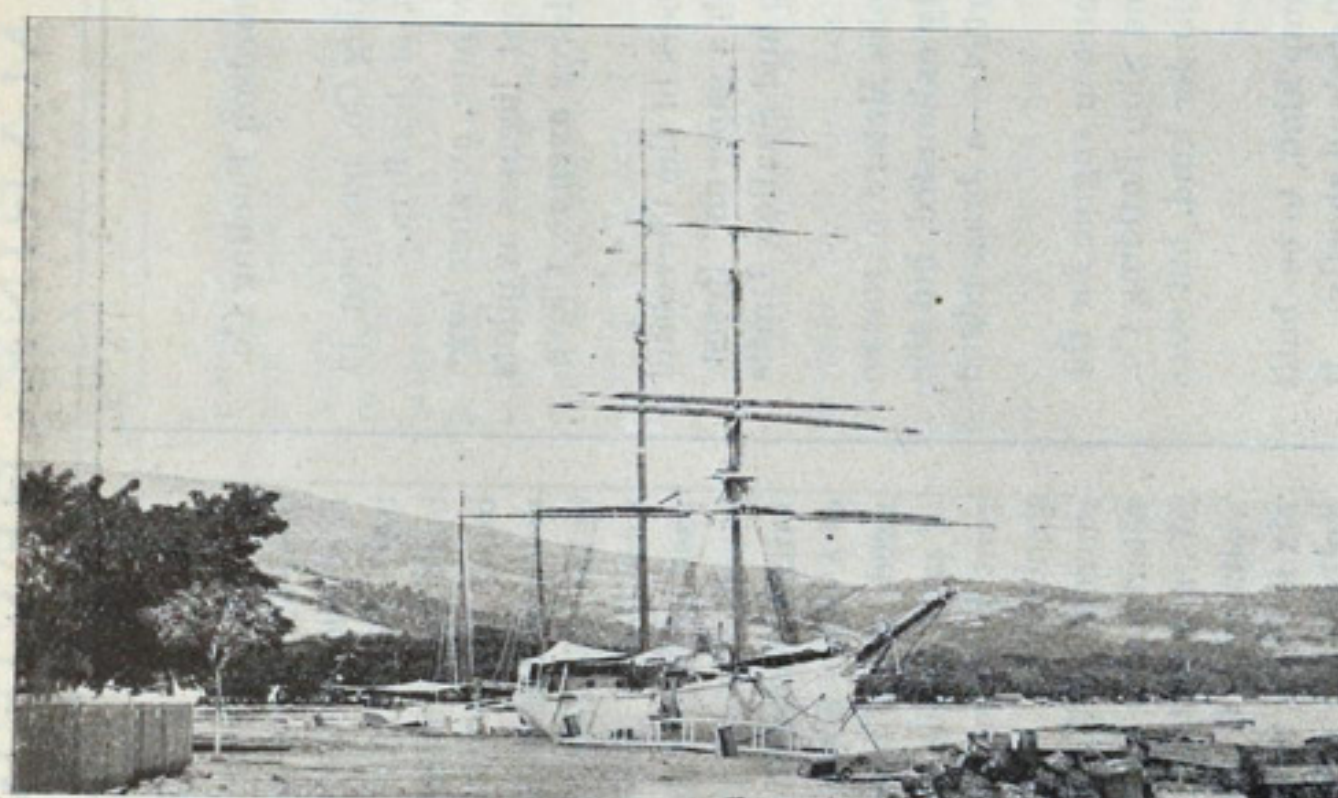
1600-TON SCHOONER EDWARD E. BRIRY.
(Built by G. G. Deering, Bath, Me.)



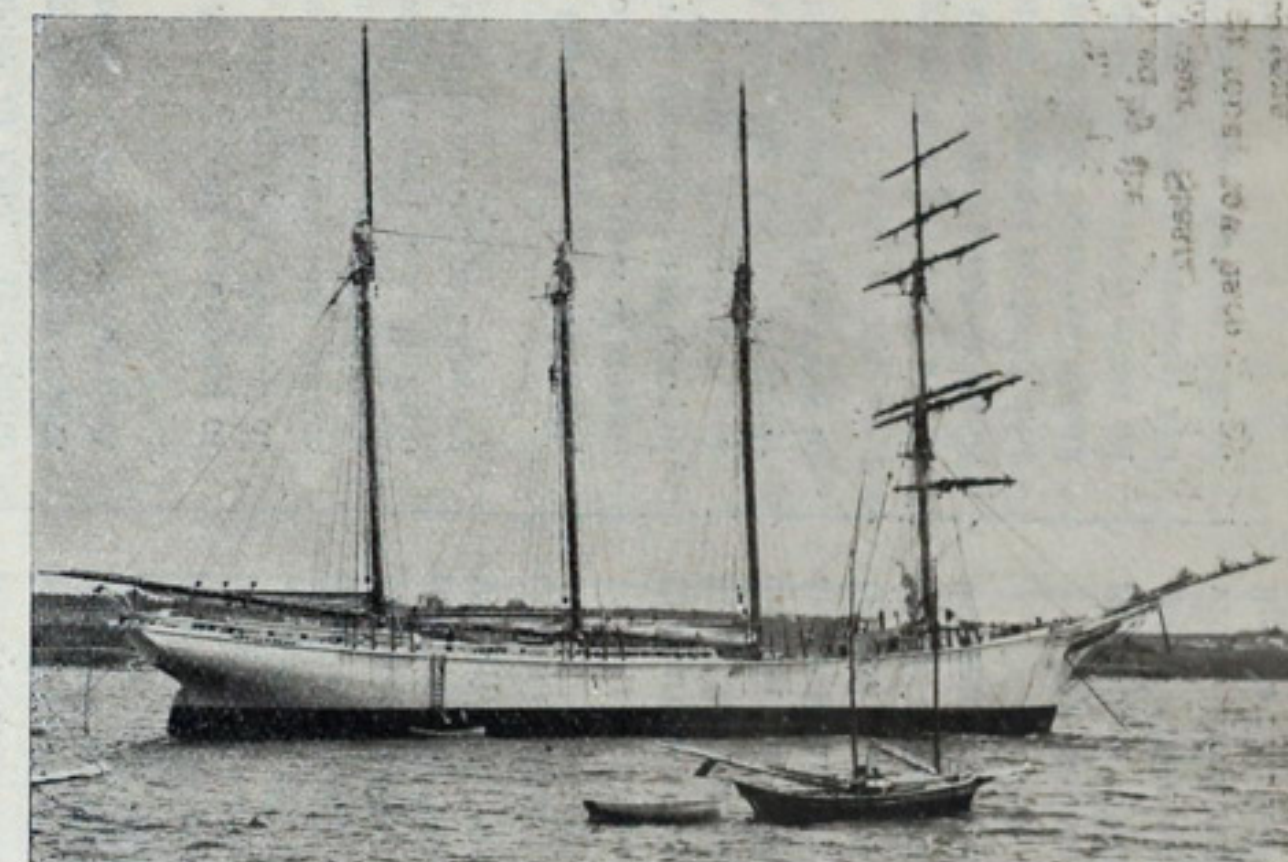
TRIPLE EXPANSION ENGINES OF THE STEAMSHIP CREOLE.
(Equipped with See-Marshall Valve Gear)



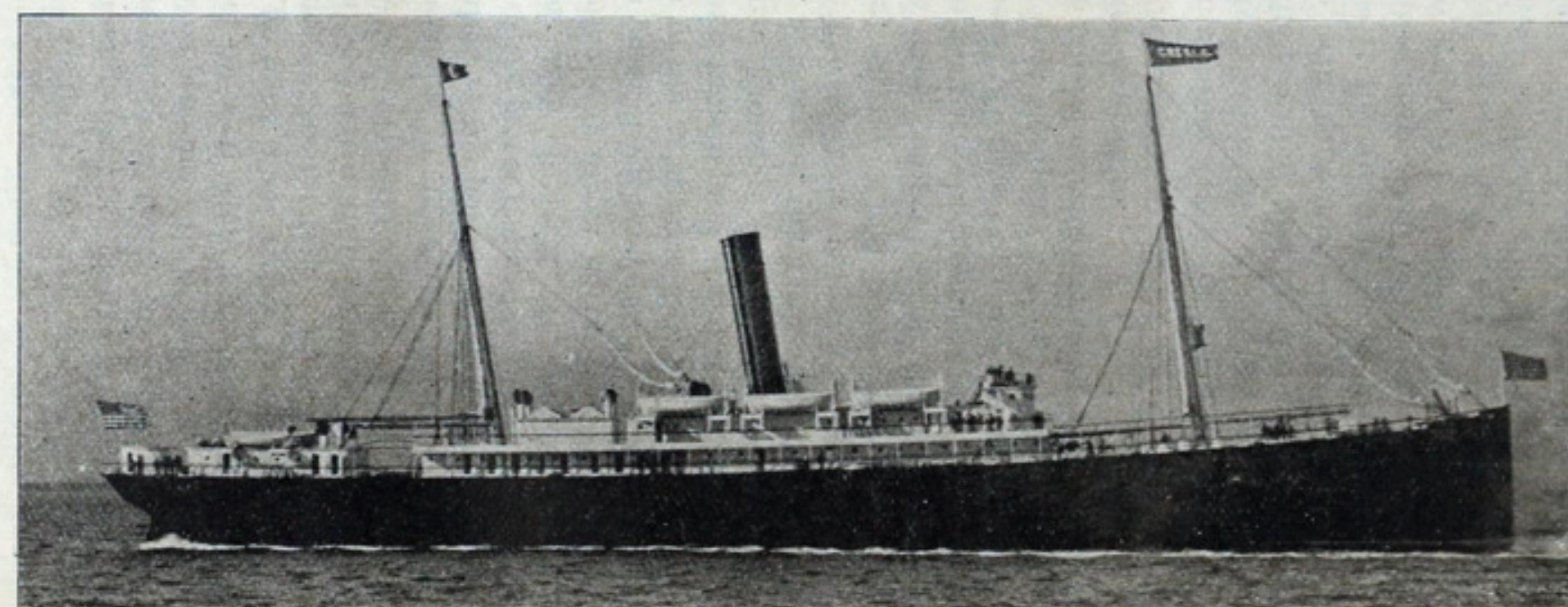
THOMASTON—ONE OF 57 CAR FLOATS.
(Built by the Robt. Palmer & Son Ship Building Co., Noank, Conn.)



BRIG GALILEE—AT THE ISLAND OF TAHITI.
(Built by Matthew Turner, San Francisco, Cal.)



SCHOONER JOSEPHINE.
(Built by McDonald & Brown, Belfast, Me., for C. Morton, Stewart & Co., Baltimore, Md.)



CROMWELL LINE STEAMSHIP CREOLE.
(Built by the Newport News Ship Building & Dry Dock Co. Designed by Horace See.)

Around the Lakes.

Capt. George Tebo is now with the O. S. Richardson Fueling Co. of Chicago.

Mr. Frank H. Brown of the Garlock Packing Co. has been in Cleveland during the last few days in the interest of his firm.

Capt. Samuel Gould is again schooling, this winter, another large class of young men who will be seeking government licenses as pilots and masters of lake vessels. His address is 265 Marcy avenue, Cleveland.

Joseph R. Oldham will entertain the members of the Cleveland Society of Engineers on the evening of Jan. 26 with a paper on "Resistance of Ships and Other Floating Bodies at Deep and Shallow Drafts of Water."

A very neat calendar gotten out by the Magnolia Metal Co. was so attractive that the supply of them was hurriedly exhausted, but the company is now distributing another useful article—a brass-edged rule for desk work.

It has been decided that the quadruple expansion engine for the steel freight steamer to be built by the Cleveland Ship Building Co. for A. B. Wolvin of Duluth will be of the four cylinder kind, but sizes of cylinders are not yet fully agreed upon.

Another car dumping machine of the side-dump kind, to be built by the McMyler Mfg. Co., will be erected in Cleveland shortly. It will be on the Cleveland Terminal & Valley Ry. Co.'s dock and will be operated by the Pittsburg & Chicago Gas Coal Co.

High winds and high water Sunday night raised the lumber barge C. L. Young so that she was floated off Horseshoe reef and she is now at a dock in Buffalo. Her upper works are not badly damaged but it is thought that her bottom is in very bad shape.

Officers of the Wilson Transit Co. of Cleveland, elected a few days ago, are: Capt. Thomas Wilson, president; A. McLachlan, vice-president; H. D. Goulder, secretary; directors, Capt. Thomas Wilson, R. McLachlan, J. E. Upton, George L. Quayle and W. D. Rees.

Capt. Jones, who was last year in the Wilson line steamer Spokane, will command the new steel steamer now being built for that line by the Cleveland Ship Building Co. The vacancy in the line will be filled by Capt. Geo. Brock, who was last season in the steamer Alcona.

A dispatch from New York City announces that the Joint Traffic Association has decided upon a reduction in the grain rate from Chicago to New York of 5 cents per 100 pounds, or 20 cents to 15 cents. This action has been found necessary to check a rapid and very important diversion of grain to southern coast ports.

Among leading vessel owners who have left or are to leave for the south shortly on vacations are James Davidson of West Bay City, J. J. H. Brown of Buffalo and James McBrier of Erie. It is quite generally understood that there will be nothing in the way of contracts for next season's business to demand the attention of vessel owners for some time to come.

A firm to be known as Drake, Bates & Co., and composed of Capt. M. M. Drake of Buffalo, F. A. Bates and John H. Bartow of Cleveland, will handle the ore of the Hale and Cincinnati mines next season. Mr. Bates has been in the ore business on a moderate scale for some time past; M. M. Drake is well known as a Buffalo vessel owner, and John H. Bartow is among the oldest and best known vessel brokers in Cleveland.

It is announced officially from Buffalo that Mr. S. D. Caldwell, who has been known for years as a manager of leading lines of steamships having railway connections, has resigned from the positions of vice-president and general manager of the Western Transit Co. A statement from the company is to the effect that Mr. Caldwell tendered his resignation because of a decision to take a rest with a view to repairing his somewhat broken health.

Owing to the favorable weather throughout the greater part of the past season of navigation, the number of vessels sheltered at Sand Beach harbor of refuge, Lake Huron, was not so large as in 1895, but the use that was made of the harbor shows that it is of more real value than any other place of shelter maintained by the government on the lakes. Following is the record of the year: Steam vessels, 529 of 246,477 tons; sail vessels, 312 of 24,621 tons; tow barges, 232 of 105,987 tons; total, 1,073 vessels of 377,086 tons.

Big Electrical Power Contract.

The announcement that the contract for the electrical utilization of the Falls of St. Anthony at Minneapolis has been awarded to the General Electric Co. directs attention to a big project in electrical engineering. Some time ago the St. Anthony Water Power Co. and the Pillsbury flour mills and elevators were merged into the Pillsbury-Washburn Flour Mills Co., which controlled not only most of the developed water power of the falls, but also the undeveloped water power below the falls. A dam to utilize this power was constructed and the total horse power available is calculated at 10,000. The water will pass through turbines of Stillwell Bierce-Smith Vaile manufacture, seven of which, each of 1,000 horse power capacity, will form the initial hydraulic equipment. The electrical equipment will consist of a plant comprising both direct current railway apparatus for the needs of Minneapolis, and three-phase apparatus for transmission of part of the power to St. Paul, ten miles distant. The direct current portion consists of two 700 K. W. General Electric multipolar generators, with a speed of 130 revolutions per minute, furnishing current at 600 volts, and two 100 K. W. exciters for the three-phase alternators. The three-phase generating plant consists of five 700 K. W. alternators, with a frequency of thirty-five cycles, and an initial voltage of 3,450 volts. This pressure will be raised to 12,000 volts in six step-up transformers of the well known air-blast type, and at this voltage the current will go to St. Paul either by overhead or underground wires. This has not yet been settled. At St. Paul the pressure will be reduced in fifteen step-down transformers, when the current will be led into the rotary converters of special type. Of these there will be five. They will resemble in appearance those which the General Electric Co. has installed in the power house of the Buffalo Street Railway Co., to take care of the power transmitted from Niagara Falls. They are 8-pole machines, each of 600 K. W. capacity, running at 520 revolutions and turning out direct current at 580 volts. They are designed to operate in parallel with each other, or with the generators now driven by steam in the existing station.

The water power development and the electric plant completed by the Pillsbury-Washburn company will be operated by the Twin City Rapid Transit Co., a lease having been made between the two companies to that effect. The street car company will send to St. Paul about 3,000 horse power, leaving 4,000 horse power to be used at Minneapolis. There was close competition on this contract between the companies engaged in electrical development and manufacture in this country. The General Electric Co.'s apparatus was preferred, however, on account of that company's long experience in power transmission work. The other concerns interested were the Westinghouse, Stanley and Walker companies.

With the new revenue cutter Gresham going into commission next season, the old Andy Johnson will be left entirely to Sault river patrol service. It is quite probable that the Globe Iron Works Co., builders of the Gresham, will be reimbursed by the government, in part at least, for their loss in the construction of the Gresham. Congressman Burton has introduced a bill providing relief for the company to the extent of \$60,970, and it is more than probable that the revenue cutter officials will favor relief, as they know the value of the boat that was turned over to them, and they know also that the builders were not to blame for numerous delays and changes that resulted in loss on the contract. Mr. Robert L. Ireland has been in Washington during the past week looking after this matter for the Globe company.

At the time of going to press meetings of three big organizations that are directly interested in the merchant marine of the country are being held in Washington. The organizations are the National Association of Marine Engineers, the Ship Masters' Association, which comprises a very large part of the vessel captains of the lakes, and the United States board of supervising inspectors of steam vessels. None of the conventions had, however, progressed far enough in their work to permit of a report being made this week.

The senate has decided to take up the Nicaragua canal bill but there is no prospect of the measure being passed by the present congress. New arguments will pertain mainly to great reductions in previous estimates of cost, these reductions being based upon the low figures that have prevailed in constructing the Chicago drainage canal.

The Term "Close of Navigation."

In passing upon a contract made between the Northern Steamship Company and the owners of the steamer Selwyn Eddy, Judge Swan of the United States district court, Detroit, has defined the term close of navigation. He is of the opinion that by common acceptance and by custom prevailing in insurance circles the season of navigation on the lakes ends not later than Nov. 30, and that any navigation after that date is "extraordinary navigation," often requiring tugs to break ice, and always uncertain by reason of storms, sudden cold or unexpected delays of many kinds. No doubt the vessel owners who are several thousand dollars out of pocket on account of their boats being frozen in at Port Arthur this winter will agree with Judge Swan, especially as it is known that some of the vessels now wintering at the head of the lakes passed through the Sault canal, bound up, as early as Nov. 26 and 27.

The case that has brought out this decision is interesting. In the fall of 1894 the owners of the Eddy entered into a contract with the Northern Steamship Co. to carry package freight, head of Lake Superior to Buffalo, from Oct. 16 until the "close of navigation." The term quoted is that which was used in the contract. There was nothing in the contract about a closing date. The vessel was to be paid \$2,700, free of handling or damage, for each east bound cargo. The contract permitted her to take return cargoes, but the charterers had nothing to do with west-bound business. The Eddy carried several cargoes under the contract, arriving in Buffalo with the last one on Nov. 24. The steamship company demanded another trip, but the managing owner of the Eddy, the late John Shaw, insisted that he could not possibly get out of Buffalo with a west-bound cargo, which was necessary so late in the fall, until Nov. 27 or later. He refused to make the trip and instead sent his vessel for a short trip to Gladstone. In doing this he arranged to get a load of soft coal in Cleveland and incurred the ill-will of the soft coal shipper also, by ordering the vessel out with only part of a cargo. The Northern Steamship Co. held back freight money on the last cargo which the Eddy delivered, and when the matter got into court they presented a counter claim of \$6,000, which they had paid to the steamer Globe for carrying the cargo which the Eddy's manager had refused to carry. But Judge Swan decided in favor of the Eddy as noted above. The case was heard about a year ago but the decision has just been rendered.

No Change in Speed.

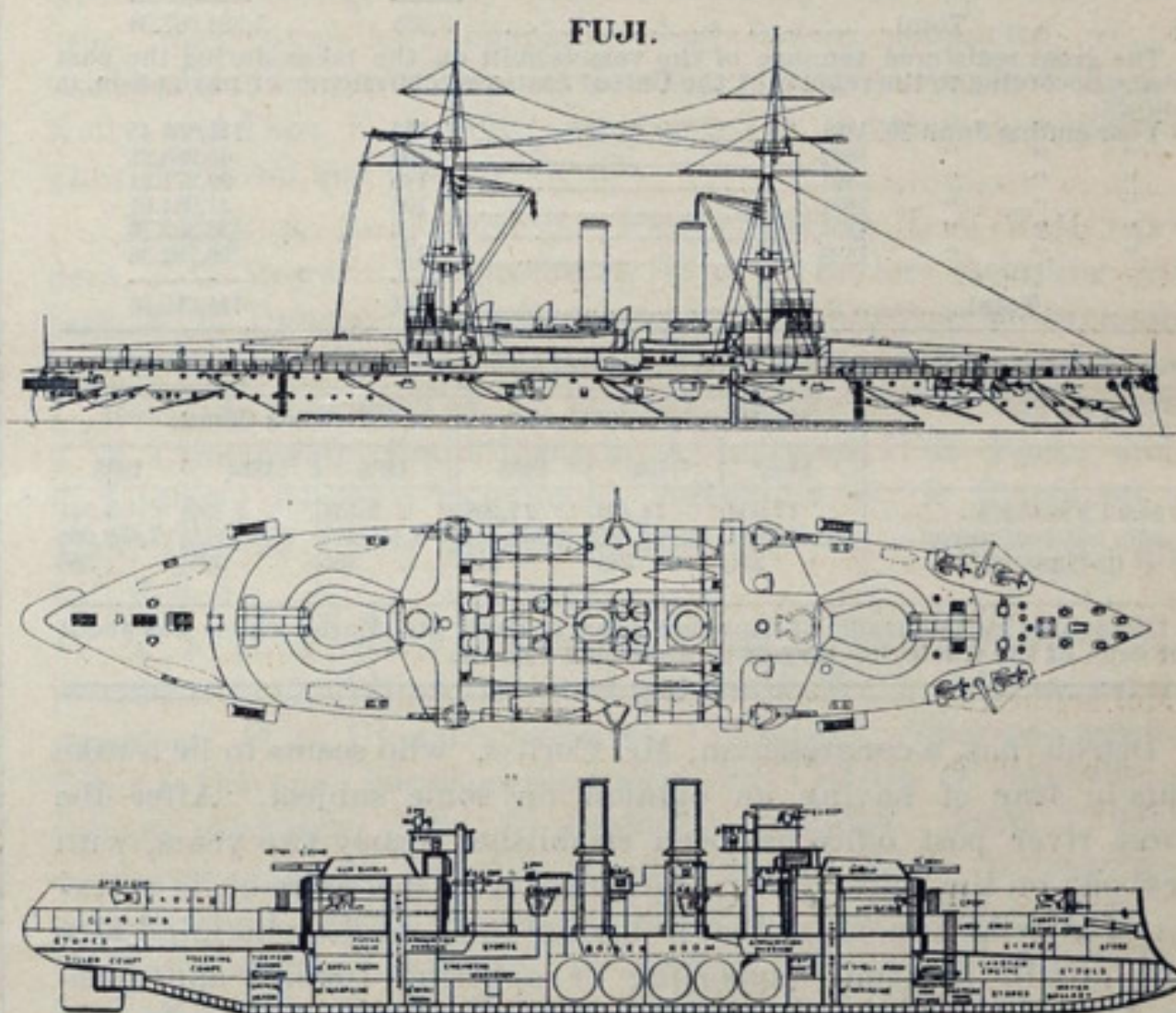
It is now more than probable that, notwithstanding the effort made at the annual meeting of the Lake Carriers' Association in Detroit to increase the speed of vessels navigating the Sault river from seven to nine or ten miles an hour in certain parts of the river, the speed limit of seven miles an hour, which prevailed last season, will again be in force during 1897. Although a vote on the question of speed was avoided at the general meeting, it was quite evident that a full expression on the part of the convention would have resulted in endorsement of the original seven-mile rule. Such was evidently the opinion of the executive committee of the association, to which the whole matter was referred, as that committee, upon meeting in Cleveland two days after adjournment of the convention, again voted against any change in the speed. The object of a meeting of this committee so soon after the convention was to give members of the Ship Masters' Association, who are now in Washington, a definite answer as to the position of the vessel owners, in order that they might deal intelligently with the commissioner of navigation and officials of the revenue marine service, who are charged with enforcement of the rules.

The committee agreed to a few less-important changes in the rules. One of these was a recommendation in favor of repeal of that feature of the regulations which provides for confiscation of property involved in violations. It was agreed also that Rule 6 should be changed to read in this way: "Steamers bound in opposite directions shall slow down to a speed not to exceed five miles an hour when within half a mile of each other and shall run under such reduced speed until they pass." Another change favorably acted upon is in the interest of small vessels. It is recommended by the committee that all yachts, tugs and vessels of less than 100 tons burthen be exempt from the rules. It will be necessary, of course, to have the treasury department pass finally upon these regulations, and it may be that the executive committee of the association will again take up the question of speed, on account of the desire of some owners to increase the speed,

but it would seem that the majority are against any increase over last year's speed. It is expected also that the treasury department will agree with the majority of the vessel owners, notwithstanding the recommendations of Capt. Davis of the revenue cutter service. The interest which Capt. Davis has shown in the regulations is appreciated by the vessel owners, and they accorded him a vote of thanks, but they were at the same time desirous of having him understand that their great object in opposing any increase in speed is to be entirely within the limits of safety in navigating the river.

Japanese Battleships.

The illustrations herewith show general plans of the Japanese battleships Fuji and Yoshima, now being completed at the Thames Iron Works and Armstrong, Mitchell & Co.'s yards in England. Their dimensions are: Length, 372 feet between perpendiculars; beam, 73.5 feet; depth, 43.6 feet; mean draught, 26.3 feet; displacement, 12,320 tons. The boats consist of two 56-foot torpedo vedette boats, one 42-



foot launch for countermining, one 30-foot steam launch, and a number of smaller ones. There are 181 water-tight compartments. Two sets of triple expansion engines, to develop 13,500 I. H. P. under forced and 10,000 I. H. P. under natural draft, give speeds of 18.25 and 16.75 knots, respectively. There are ten single-ended cylindrical boilers with four furnaces each. The total coal supply is 1,200 tons and the normal supply 700 tons. Each has armor belts 226 feet long covering the hull 3 feet below and 5 feet above the water line, ranging from 14 to 18 inches thick.

Inman Again in the Tug Business.

If the Barry brothers of Chicago, who have been arranging with Capt. James Davidson for tugs with which to establish a line at Duluth, go ahead with their plans there will be three harbor tug lines at the head of the lakes next season—Singer, Barry brothers and Inman. Capt. Inman seems to have some very staunch friends, among them A. B. Wolvin and several of the line boat managers, who will give him their towing business. On the strength of this business, and in view also of the claim that Inman's failure was due not to his tug affairs but to other vessel business in which he became interested, the Duluth bankers who now hold the tugs have concluded to organize a new company, putting Inman at the head of it, but exercising supervision over his management. The new line will not, of course, include the tug Thomson, as that vessel is now the property of Hawgood & Avery, who owned the machinery taken from the Belle Cross and who have since secured the hull. It is understood, however, that the tug in which Port Huron parties are interested will be included in the new line. Capt. Inman has been in Cleveland and Buffalo during the past few days requesting vessel owners with whom he has been doing business to hold off arrangements for next season's towing until such time as he may be able to deal with them through the new company.



DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 409 Perry-Payne building, Cleveland, Ohio,
by John M. Mulrooney and F. M. Barton.

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each. Convenient
binders sent, post paid, \$1.00. Advertising rates on application.

Entered at Cleveland Post Office as Second class Mail Matter.

The books of the United States treasury department on June 30, 1896, contained the names of 3,333 vessels, of 1,324,067.58 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1896, was 383 and their aggregate gross tonnage 711,034.28; the number of vessels of this class owned in all other parts of the country on the same date was 315 and their tonnage 685,204.55, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1896, was as follows:

	Number.	Gross Tonnage.
Steam vessels.....	1,792	924,630.51
Sailing vessels and barges.....	1,125	354,327.60
Canal boats.....	416	45,109.47
Total.....	3,333	1,324,067.58

The gross registered tonnage of the vessels built on the lakes during the past six years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30.	1891	1892	1893	1894	1895	1896	Total
No. vessels.....	204	169	175	106	93	117	864
Gross tonnage.....	111,856.45	45,968.98	99,271.24	41,984.61	36,352.70	108,782.38	444,216.36

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1895*	1894	1893	1895	1894	1893
No. vessel passages.....	17,956	14,491	11,008	3,434	3,352	3,341
Tonnage, net registered.....	16,806,781	13,110,366	9,849,754	8,448,383	8,039,175	7,659,068
Days of navigation.....	231	234	219	365	365	365

* 1895 figures include traffic of Canadian canal at Sault Ste. Marie, which was about ¼ per cent. of the whole, but largely in American vessels.

Detroit has a congressman, Mr. Corliss, who seems to lie awake nights in fear of having an opinion on some subject. After the Detroit river post office has been established nearly two years, with everybody on the lakes fully acquainted with the scope of its operations, Mr. Corliss announces that he has not fully made up his mind as to what he will do about supporting or opposing further appropriations for it. He says his attention has only been called to the post office by newspaper reports. He will investigate and learn presently how many pieces of mail are handled on the river and then he will try to make up his mind. If Mr. Corliss submits to a few more interviews the matter of his making up his mind may become a standing joke among people who know of his weakness in this regard, on account of their dealings with him on questions other than the Detroit river post office. The vessel interests of the lakes care nothing for the local wrangle in Detroit about the river post office. Postmaster Enright was entitled to no endorsement from the vessel interests as an individual, any more than J. W. Westcott is entitled to sympathy because he lost a business that can only be handled by the post office department of the government. Mr. Corliss may be a long time in making up his mind, and the local squabble in Detroit may appear to be of some importance politically, but the question between the post office department and the vessel owners has reference to only one point, the usefulness of the Detroit river service. Everybody knows that the river post office has scored a greater success than anything ever undertaken by the department in lake cities, and it is not probable, therefore, that the differences existing in Detroit will interfere with appropriations.

In the recent political campaign a great stir was made in favor of placing a duty on all goods imported in vessels not of the United States. The scheme of discriminating duties was held up as a means of helping American shipping. Bills with this end in view were introduced, some time ago, in the present congress, notably one by Senator Elkins of West Virginia, which provides for a 10 per cent. advalorem duty, additional to any regular duty, on all goods imported in vessels other than vessels of the United States. It is plain now, however, that there is no possibility of this bill or any bill of its kind passing the present congress. Leading members of both political parties are outspoken in opposition to discriminating duties, and it is quite evident that the meeting in Washington, a few days ago, of leading senators with Atlantic coast ship builders and ship owners was

for the purpose of dropping the discriminating measures. The ship builders and steamship lines were represented by Messrs. Griscom, Sewall, Smith, Clyde, Cramp and Hyde. It was decided that the ship owners and builders, who were not all in favor of discriminating duties, should agree among themselves. They were asked by the senators to prepare what they thought was a suitable measure for the advancement of American shipping and present it to congress.

Dispatches from Washington during the past few days would indicate that Secretary Olney has simply to write a few letters to the British government and the question of lake ship builders being permitted to construct war vessels would be settled in our favor. It is unfortunate, however, that there is a great deal more back of this question than appears on the surface, as Senator McMillan learned when he undertook a settlement of it some two or three years ago. Congressman William Alden Smith of Michigan has directed Mr. Olney's attention to the treaty memoranda bearing on the subject, and the secretary of state is said to be of the opinion that it is a matter that can be settled in the state department without reference to congress. It must be understood, however, that any vessels of war built on the lakes, even of the smallest size, must pass to the seaboard through a system of canals on the St. Lawrence which Canada is now completing at an expense of many millions of dollars. It is plain, therefore, that although the treaty memoranda, so called, might be easily set aside, there are other important questions that would certainly follow a proposition to move through the Canadian canals any war vessels that might be built on the lakes.

Editor George L. Norton of the Marine Journal, New York, has been accorded a special honor in election to the position of first vice-president of the Marine Society of New York, which entitles him to place in the board of trustees of a great humane institution, the Sailors' Snug Harbor. The Marine Society of New York is one of the oldest and most respected associations of its kind in the world. Capt. Norton is certainly entitled to this recognition. He has labored for many years in the interests of shipping in this country, and his knowledge of everything pertaining to this interest will serve him well in the two positions to which he has been elected. It may be said of him, further, that he is a gentleman in the highest sense of the term. His wide circle of acquaintances will be increased by meeting in the board of trustees of the Sailors' Snug Harbor the mayor of New York, the president of the New York chamber of commerce and other men of influence.

Numerous rumors of low rail and lake freight rates have been circulated in connection with the accounts of the Carnegie-Rockefeller ore and transportation deal, but it is more than probable that when facts regarding the big transaction are fully known, as they will be when legal documents are filed, it will be found that the basis of lake freights to be paid to the Rockefeller ships is not so low as to be discouraging to the vessel interests as a whole. It is understood, in fact, that throughout the negotiations there was never any thought on either side of the ships being paid less than 80 cents for ten years if a fixed rate had been established.

The United States senate is already after the managers of the railway steamship lines who are affiliating with the Joint Traffic Association. Senator Chandler has introduced a resolution, which was agreed to, directing the committee on interstate commerce to "inquire into the agreement recently made by the managers of the lines of steamers on the great lakes to maintain such rates of freight transportation as may be fixed by the managers of the railroads constituting the Joint Traffic Association."

It would seem from information given out by Duluth vessel brokers and others who are acquainted with the northwestern grain trade that vessel men have little to expect in the way of a grain movement from the head of the lakes until next fall. It is the opinion of those who are best able to judge the situation at Duluth that there will not be more than 12,000,000 bushels of grain moved by lake previous to September of next year.

Of all the vessels arriving at the port of New York from foreign ports during the year 1896 less than 24 per cent. were under the American flag.

New Officers Among the Engineers.

M. E. B. A. No. 73, Green Bay: Past president, E. Langlois; president, E. B. Kellogg; vice-president, James Lucas; recording secretary, E. B. Kellogg; conductor, E. Dailey; chaplain, J. Prevot; doorkeeper, W. Rasmussen.

M. E. B. A. No. 87, Detroit: President, Wm. C. Barr; vice-president, Warren Welch; secretary, George B. Milne, No. 503 Commonwealth avenue; conductor, Peter St. Onge; doorkeeper, Joseph Taylor; chaplain, R. Longford; trustees, Emil Mercies and Michael Toner.

M. E. B. A. No. 28, Duluth: Past president, A. Beauchemin; president, A. Harvey; vice-president, M. N. McDonald; treasurer, A. McGilliway; secretary, F. B. Barrows; chaplain, E. Wagner; conductor, F. Bell; door-keeper, M. Ryan; representative to national convention, A. McGilliway.

M. E. B. A. No. 76, Grand Haven: President, Edg. F. Bryce; vice-president, Charles Barr; financial secretary, I. H. Sanford, Jr.; recording secretary, Ed. Stokes; corresponding secretary and treasurer, Orson Vanderhoof; conductor, John Golden; chaplain, David Anderson; door-keeper, John Doyle.

M. E. B. A. No. 67, Saugatuck: Past president, Wm. S. Bradley; president, Geo. J. Harvey; vice-president, Wm. Hattersly; recording secretary, Wm. G. Edgcome; corresponding secretary, Wayne Coats; financial secretary and treasurer, J. K. Dole; chaplain, Wm. Rode; conductor, Wm. Wilson; doorkeeper, Sam Johns.

M. E. B. A. No. 102, South Haven: President, Ralph Peterson; vice-president, John Lavell; recording secretary, B. F. Devor; financial secretary and treasurer, A. Krogman; corresponding secretary, Chas. LaBounty; conductor, Wm. Krogman; doorkeeper, A. H. Royell; chaplain, Fred Linsemyer; trustees, Chas. LaBounty, Wm. Tyler, R. Peterson.

M. E. B. A. No. 92, Saginaw, E. S.: Past president, Charles Morgan; president, Joseph D. Budd; vice-president, Joseph Huber; chaplain, John Wycoff; conductor, Joseph R. Hall; treasurer, John Henry; corresponding secretary, Harry E. McArthur; financial secretary, Walter Henry; recording secretary, Frank Nold; doorkeeper, Fred Pfleuger.

M. E. B. A. No. 5, Muskegon: Past President, Dan McMillan; president, Alfred A. Green; vice-president, Harry O'Hara; financial secretary, James Cummings; corresponding secretary, James Cummings; treasurer, Alfred A. Green; chaplain, Dennis McMillan; recording secretary, Henry Connell; conductor, Eli V. Barry; doorkeeper, Charles Eason.

M. E. B. A. No. 27, Bay City: Past president, L. C. Schwall; president, Thos. Graham; vice-president, Geo. Coveyou; recording secretary, J. Daniels; corresponding secretary, N. P. Slater; financial secretary, J. Wortz; treasurer, L. Gelinas; conductor, E. Coveyou; chaplain, C. Harman; doorkeeper, F. Gartung; representative to national convention, N. P. Slater.

M. E. B. A. No. 85, Alpena: Past president, Theo. Kneale; president, Robert A. Grant; vice-president, Geo. Miller; corresponding and recording secretary, Arthur J. Irwin; financial secretary, Samuel Kissick; treasurer, David Thomson; chaplain, Benjamin Kohsman; conductor, Chas. Warwick; doorkeeper, Alvin Calkins; trustees, A. J. Irwin, David Thomson, and Geo. Miller.

M. E. B. A. No. 48, Sandusky: President, Wilbur F. Clark; vice-president, Patrick Ragen; treasurer, W. F. Mayer; financial secretary, Carl V. Hart; corresponding secretary, John Ewing, No. 1510 Monroe street; recording secretary, John Ewing; conductor, Geo. Moore; chaplain, H. Burkley; doorkeeper, Nils Lockhart; outside doorkeeper, Joe Bernkhart; trustees, J. Gaa, Geo. Zanger and W. Mayer.

M. E. B. A. No. 88, Sturgeon Bay: President, Olaf Sanders; vice-president, J. Ashby; corresponding secretary, C. O. Chapman; recording secretary, F. A. Ives; financial secretary, Henry Devine; chaplain, Henry Devine; treasurer, Ashley Coffern; conductor, Henry Dueman; doorkeeper, Ashley Coffern; trustees, W. O. Helmholtz, Olaf Sanders and J. Ashby; representative to national convention, Frank Ives.

M. E. B. A. No. 77, Manitowoc: Past president, Geo. P. Roth, Sr.; president, Jos. A. Weber; vice-president, Chas. Monroe; sec-

ond vice-president, Frank Heffernan; treasurer, Geo. P. Roth, Sr.; corresponding secretary, John A. Flint; recording secretary, Geo. P. Roth, Jr.; financial secretary, Thos. Harkins; chaplain, Fred Larson; conductor, Joe Seitz; doorkeeper, John Hall; trustees, Ed Thayer, Jule Bushman, and Felix Nieder; representative to national convention, Geo. P. Roth, Sr.

M. E. B. A. No. 53, Marine City: Past president, Frank Ouelette; president, H. H. Butler; vice-president, S. O. Durrant; treasurer, Frank Parker; corresponding secretary, Harry Stone; recording secretary, E. H. Hill; financial secretary, Constandt Kraus; chaplain, John Valker; conductor, John Dibble; doorkeeper, Joseph Hasler; outside doorkeeper, James Ryan; delegate to national convention, Harry Stone; alternate delegate to national convention, Frank Parker.

M. E. B. A. No. 4, Chicago: President, John Reif; first vice-president, Louis Allison; second vice-president, Chas. Van Avery; recording secretary, E. E. Morris; corresponding secretary, Geo. A. Grubb, 1537 George street; financial secretary, Dan W. Wise; treasurer, Jas. Donnelley; chaplain, Burt Rasch; conductor, W. W. Grubb; door-keeper, John F. Conley; trustees, Jacob Reitz, Jos. Kelly, and Thos. K. Hunter; representative to national convention, Thos. F. Dowd and Geo. A. Grubb.

M. E. B. A. No. 3, Detroit: Past president, T. J. Kelly; president, S. G. Cowell; vice-president, Wm. F. Taylor; recording secretary, E. R. Dungan; financial secretary, F. Kenyon; corresponding secretary, W. F. Cullen; treasurer, E. R. Blanchard; chaplain, J. L. Rossiter; conductor, A. L. Bennett; doorkeeper, B. Ray; trustees, J. M. Cronenweth, Frank Kenyon, A. L. Jones, C. H. Burke, and R. C. Ludlow; delegates to national convention, E. R. Blanchard and E. R. Dungan. This association will give its twenty-third annual ball Feb. 2.

M. E. B. A. No. 9, Milwaukee: Past president, Joseph Krach; president, J. C. Collins; first vice-president, W. G. Fell; second vice-president, G. C. Oleson; treasurer, J. Havlick; financial secretary, John J. Conway; corresponding secretary, Charles G. Forsyth; recording secretary, John D. Desmond; chaplain, John J. Staley; conductor, James J. Daley; inner door-keeper, Edgar Doucett; outer door-keeper, Chas. G. McCarthy; trustees, Webb Chipman, Jr., G. C. Oleson and J. E. Packard; delegate to national convention to be held at Washington, D. C., Jan. 18, 1897, J. C. Collins.

Steel Forgings.

Editor Marine Review:—I have read with much pleasure the very comprehensive account of my address before the Lake Carriers' Association, which you published in your issue of the 14th inst. There, is, however, one point which I would like to call attention to which seems to have been omitted. I think I made it plain to those present at the address that steel forgings are so much stronger and so much more reliable than wrought iron forgings that their size, and therefore their weight, can be materially reduced. Inasmuch as the forgings in a marine engine constitute a large percentage of its weight when we include the shafts, if the size and weight of these forgings can be materially reduced the carrying capacity of the vessel would be considerably increased, and although the price per pound of high grade steel forgings is somewhat higher than that of wrought iron forgings, still by reducing the size of the steel forgings, their total weight and price would be reduced so that their cost would not be in excess of the cost of iron forgings. I trust that you will be willing to make this addition in your coming issue, and thanking you for your courtesy in this matter, I beg to remain,

H. F. J. Porter,

1433 Marquette Bldg.,
Chicago, Jan. 19, 1897.

General Western Sales Agent,
Bethlehem Iron Co.

Thos. Drien & Son, Wilmington, Del., have received a number of orders from lake builders for life boats, rafts, etc. They like to get their lake orders made up before their eastern orders for excursion steamers begin to come in.

Now that the Lake Ontario grain movement will be increasing, masters will want Lake Ontario general chart No. 61 and coast chart No. 1, as well as St. Lawrence river charts Nos. 4, 5 and 6. The five will be sent by the Review to any address by express for \$2.

A Comparison of Boilers.

Some readers of the Review have criticised us for giving up as much space as has been devoted during the past two or three years to the question of water tube vs. cylindrical boilers. Although the subject is undoubtedly the most important matter before the marine engineering profession, we have tried to avoid giving space to it to the exclusion of other questions. But we have not succeeded in satisfying everybody concerned. Since the recent extended discussion about water tube boilers in the New York Herald, it has been said that the Review has not put the question in the right light before owners of cargo vessels, who are greatly in the majority on the lakes, and who are especially interested on account of the tendency to adopt artificial draft. There is a very large class of men well posted in marine engineering matters who insist that the water tube boiler has its place in vessels of war and in special lines, but that that place is not in cargo vessels, and their particular contention is that the one thing paramount in a cargo boat is economy of fuel, which is not to be had from water tube boilers. One of our correspondents who holds out this claim especially, and who asks that it be brought prominently to the attention of owners of freight vessels on the lakes, sends us a communication on the subject which was published in the New York Herald immediately following the discussion referred to above. Following is the communication:

To the Editor of the Herald:—I have read with interest the various articles published in your valuable paper upon the question of water tube boilers, and now feel that I would like to draw public attention to a few facts on this subject. There is one important point which the most of the gentlemen interviewed seem to have tacitly avoided—in fact, probably the most important of all—viz., the consumption of fuel in relation to the power developed. While I quite agree with the other contributors that water tube boilers have come to stay, I think this statement ought to be limited, for meantime water tube boilers are almost confined to small naval or other high speed steamers intended for short runs only, and with the exception of the French navy their application to large steamers in almost every case is of recent date.

While government departments can be lavish with the disbursements of public funds and experiment with new steam generators, it remains to owners and managers of the mercantile marine to prove the usefulness of any new departures in this direction, because it is a matter of success or failure commercially with them. It is therefore obvious why the water tube boiler is not more generally adopted by the mercantile marine, the reason being, without doubt, the relatively large consumption of fuel as compared with the present high pressure Scotch cylindrical boiler. To my knowledge there are merchant steamers sailing at present, with high pressure cylindrical boilers and Howden's system of forced draft and triple expansion engines, developing one indicated horse power for 1.2 pounds of coal burned. The weight of the boilers with the water and forced draft arrangements complete is about 130 pounds per indicated horse power, while I notice one of your contributors gives a comparative weight of water tube boilers as 66 pounds per indicated horse power. Then, again, the best water tube boilers today are burning two pounds of coal per indicated horse power per hour and in many cases more.

I have data from one of the few mercantile marine vessels fitted with Belleville boilers, and probably the only one making continuously long ocean voyages. The data show plainly that the best performance is two pounds of fuel consumed per indicated horse power per hour. Let us compare this with results obtained from cylindrical boilers, taking a steamer indicating 2,000 horse power on a twelve days' voyage:

	Cylindrical.	Water tube.
One horse power	2,000	2,000
Weight, tons	120	60
Consumption per one horse power per hour, pounds	1.2	2
Consumption per day, about, tons	25	43
Difference per day in favor of cylindrical boilers, 18 tons.		
Difference for twelve days' run, 216 tons.		

This is against a difference in weight of boilers, and it is not only evident gain in weight of coal carried, but the cost of supplying and putting on board, and the space occupied in the vessel. While, as I have already stated, the water tube boilers are suitable in some cases for light, high speed steamers making short runs, there will require to

be a great improvement made in the present designs before they will take the place of the type at present used in the mercantile marine vessels.

A. Thomson,
Engineer and Naval Architect.

New York City, Dec. 12, 1896.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes, Jan. 16, 1897:

	Wheat, bushels.	Corn, bushels.
Chicago	13,039,000	6,195,000
Duluth	3,199,000	11,000
Milwaukee	335,000	4,000
Detroit	355,000	115,000
Toledo	1,129,000	415,000
Buffalo	1,986,000	127,000
	20,043,000	6,867,000

As compared with a week ago, the above figures show, at the several points named, a decrease of 348,000 bushels of wheat and an increase of 418,000 bushels of corn.

Alterations in the Kaliyuga.

Although the Detroit Dry Dock Co. has no new ship contracts on hand, the management seems to be securing for its engine works a very large share of the work that is to be had in that line. They have just arranged with Mr. W. G. Mather of the Cleveland-Cliffs Iron Co. to compound the engines of the wooden steamer Kaliyuga and to furnish her with a new boiler having Howden hot draft appliances. The new engines will have cylinders of 22 and 46 inches diameter and 45 inches stroke. The boiler will be 12 feet 6 inches diameter by 12 feet long, allowed 130 pounds steam pressure. Mr. Mattsson of the Dry Dock Engine Works was in Cleveland Tuesday going over the engines of the Kaliyuga in preparation for the change. The vessel will be towed to Detroit early in the spring, and everything will be in readiness for her, so that she may go into commission about May 1. The Cleveland-Cliffs company already has one vessel, the Pioneer, fitted with the Howden system of draft.

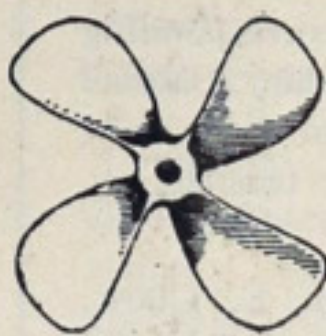
Clean Boilers.

To whom it may concern:—I contracted with the J. H. Parsons Chemical Co., early in the spring of 1896, to keep the boilers of our five steamers free from scale or incrustation for the season of 1896 for a certain sum, they to remove all the old scale. Some of the boilers had been in use for more than ten years. I have just had reports from all of our engineers and we are happy to state that all of our boilers are clean and in good condition.

D. Carter, General Manager,

Detroit & Cleveland Steam Nav. Co.,

Detroit, Mich., Dec. 16, 1896.



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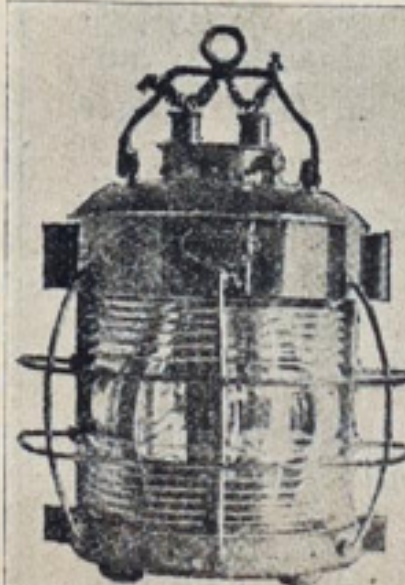
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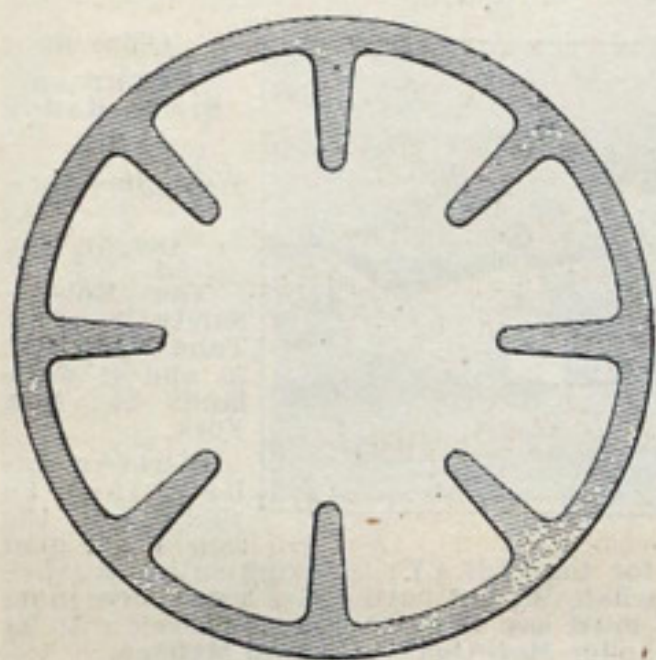
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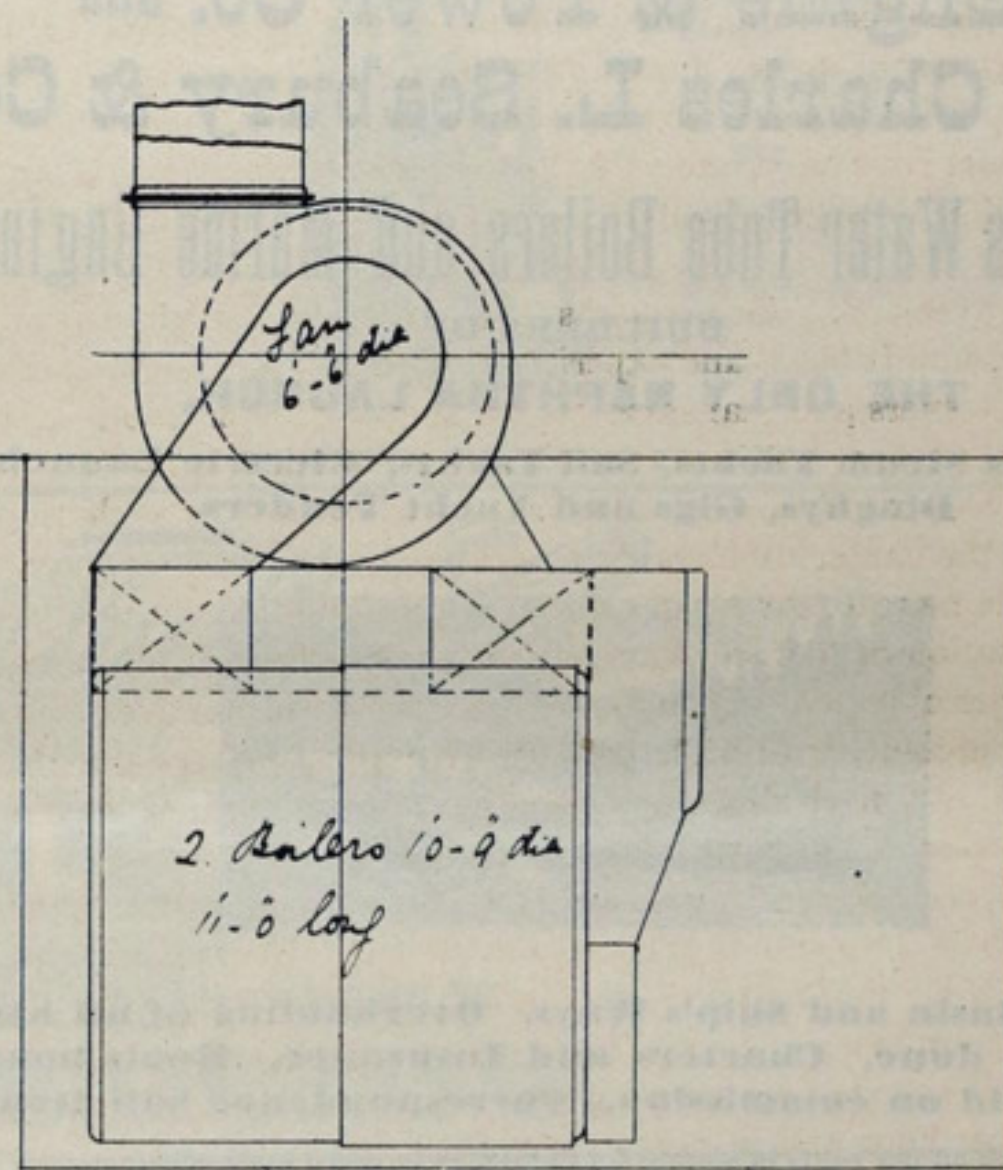
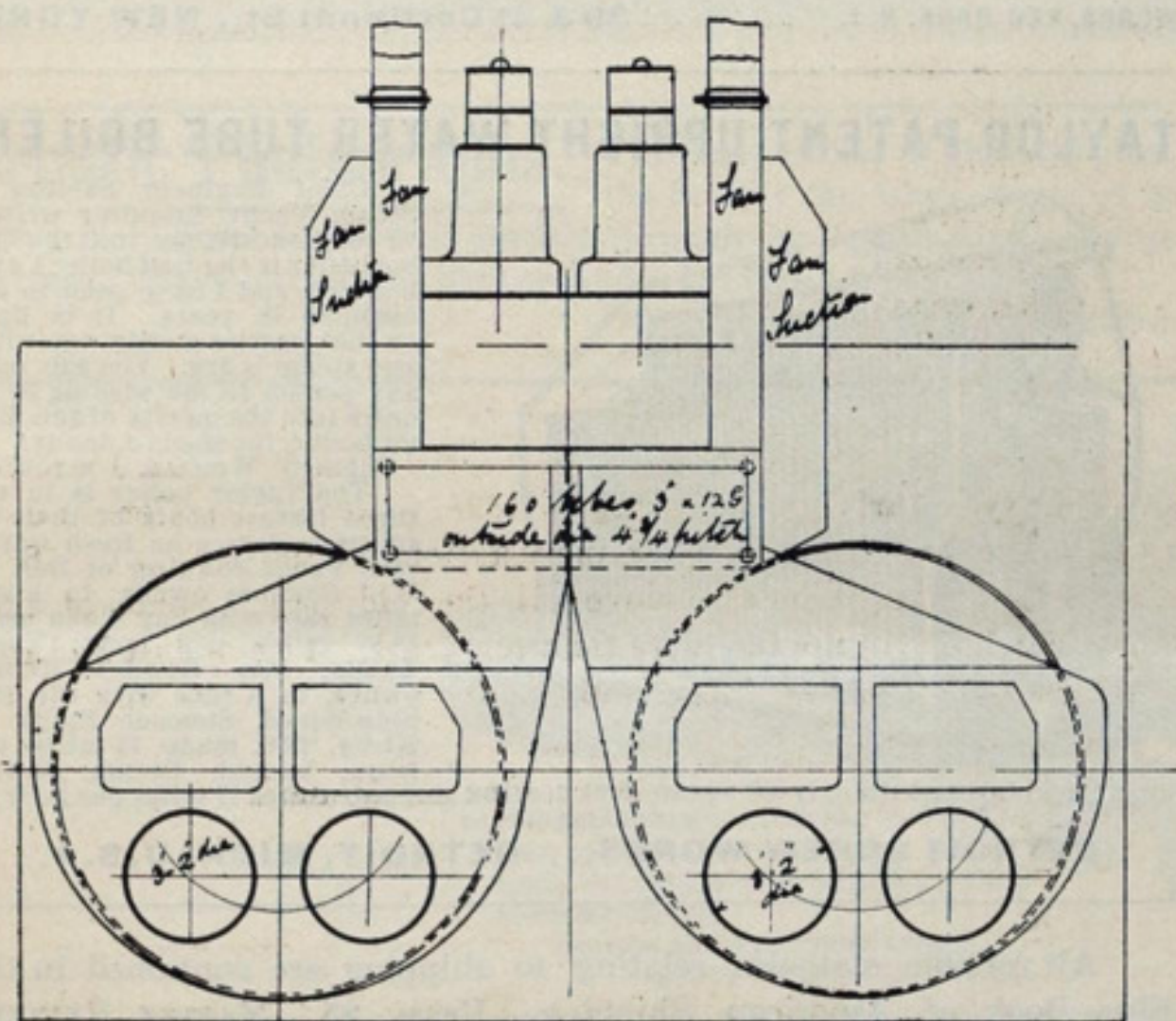


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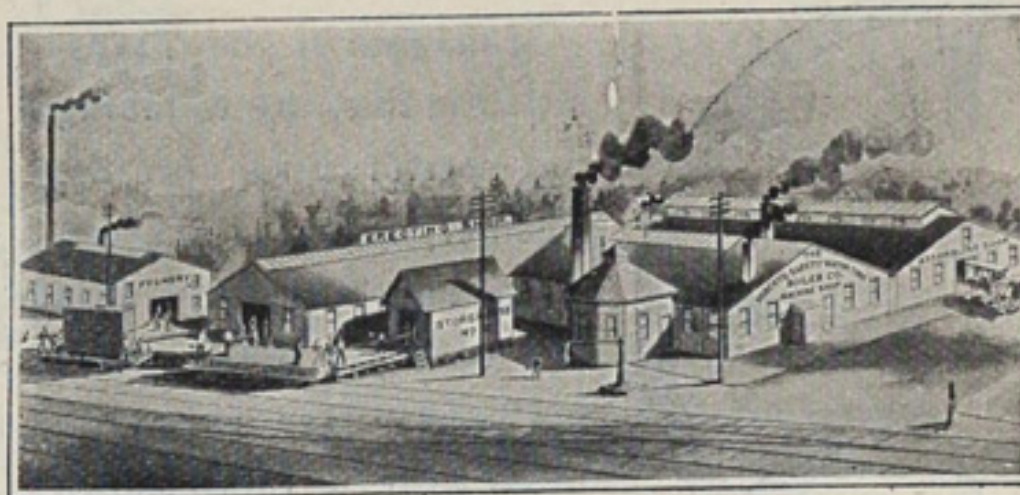
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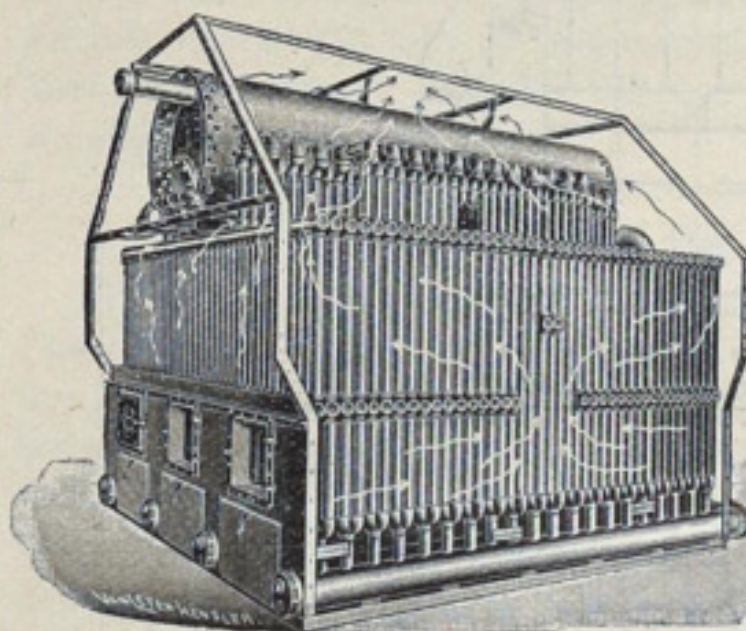
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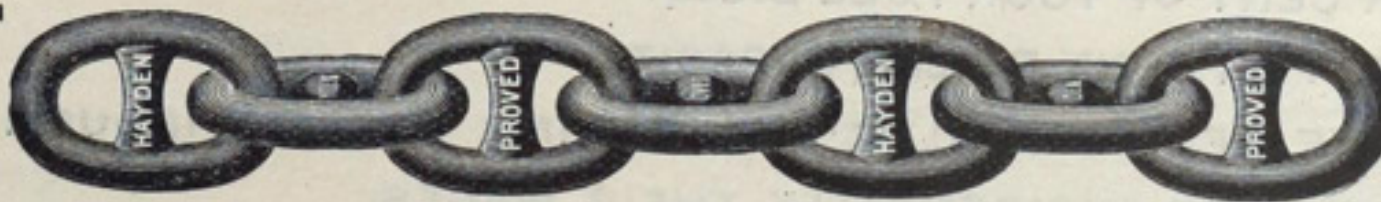
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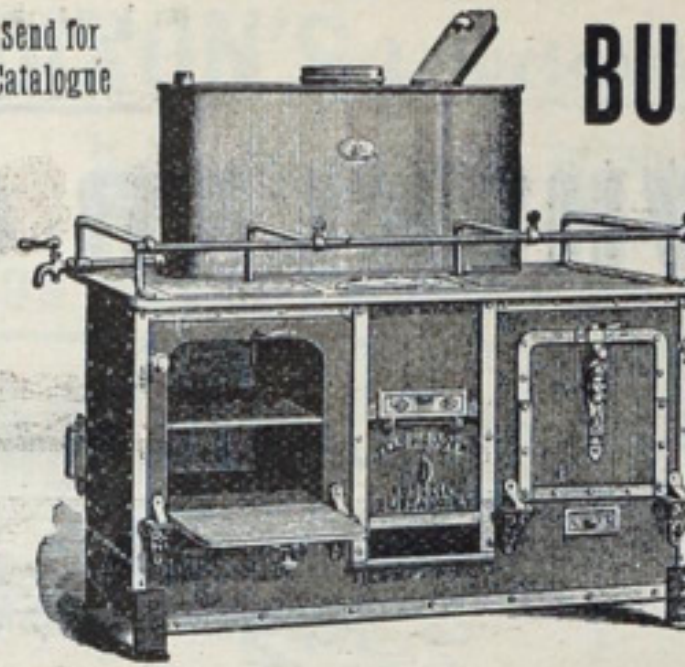
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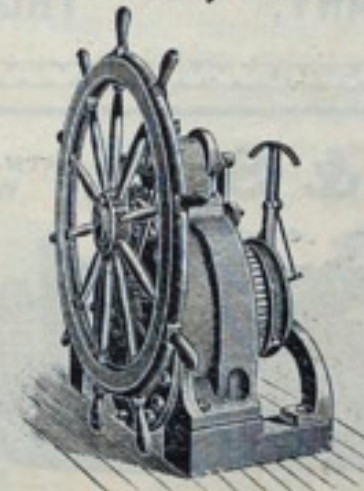
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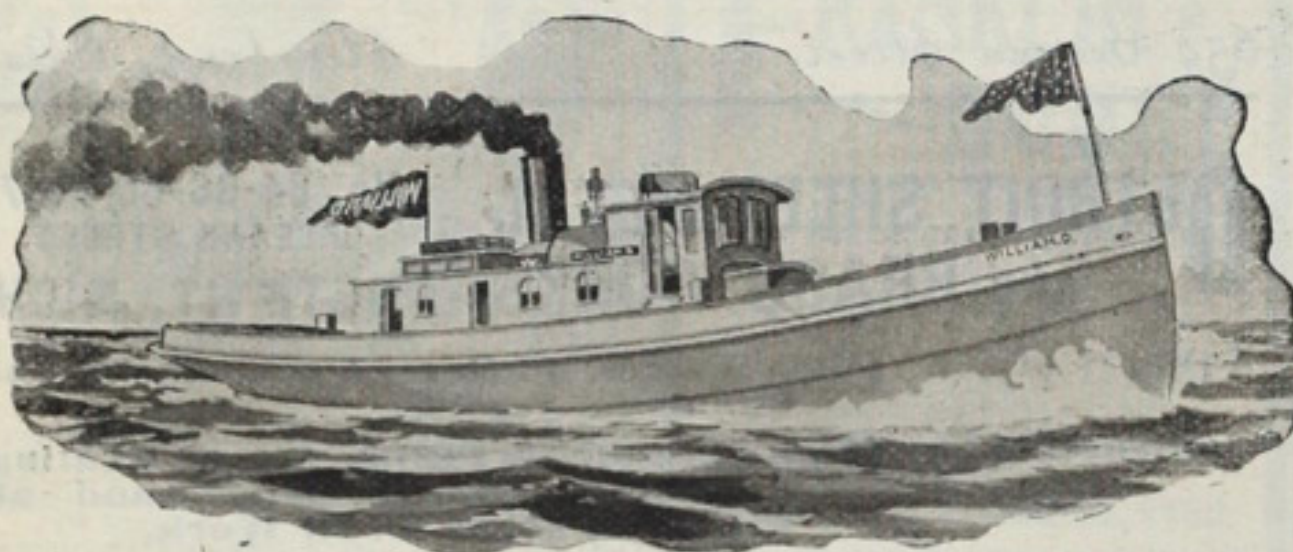
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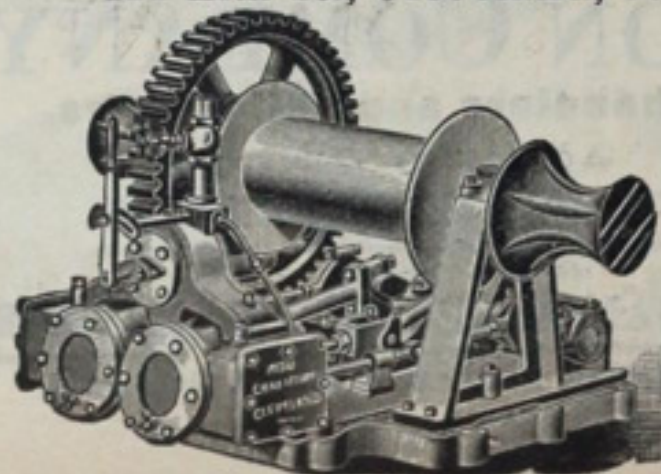
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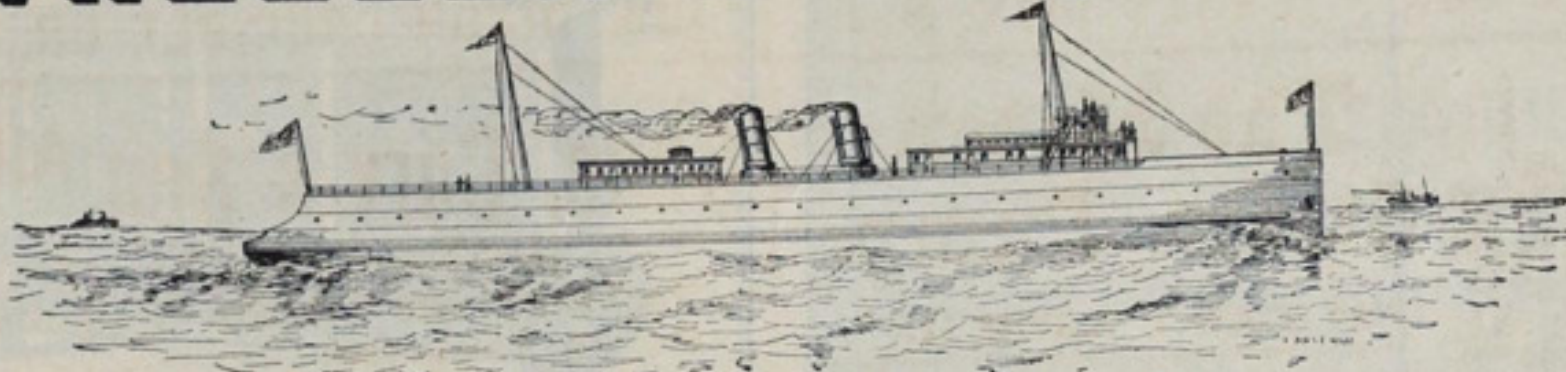
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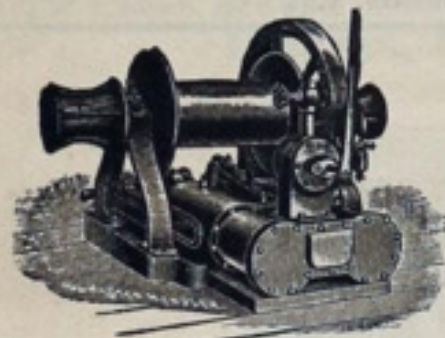
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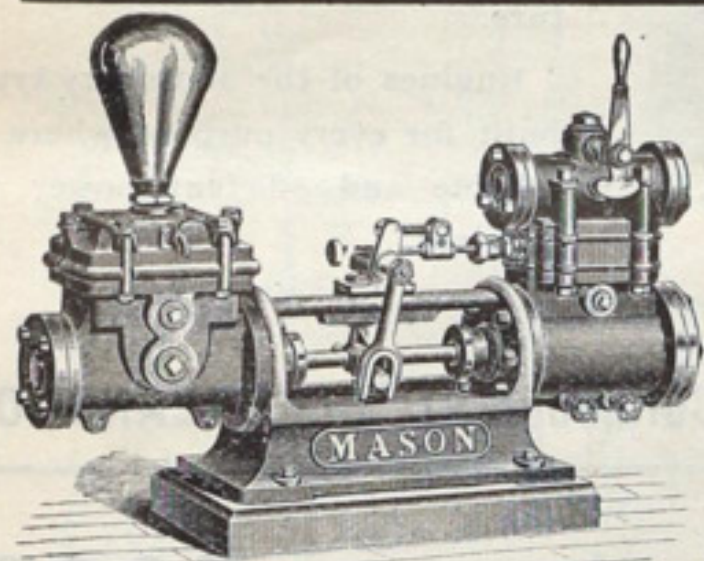
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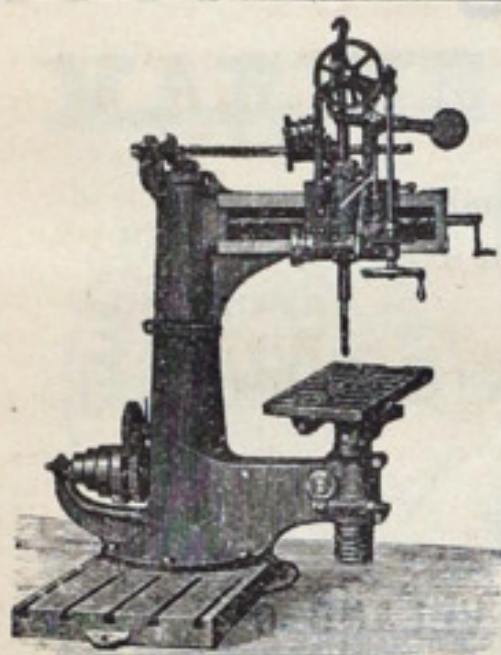
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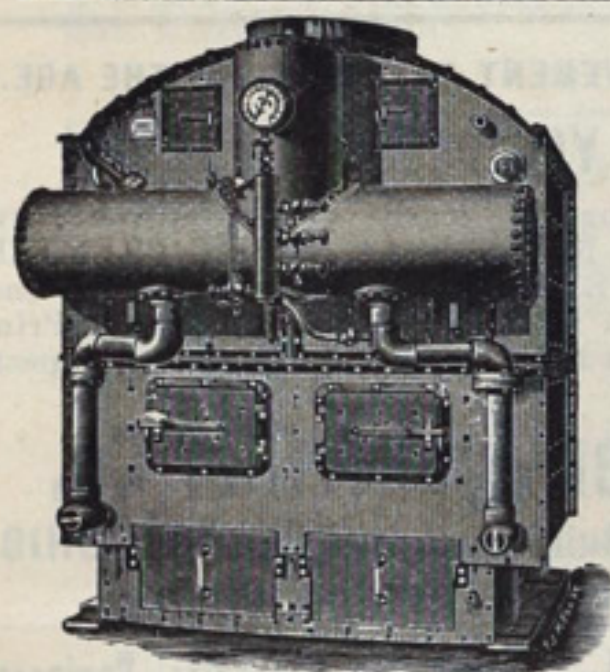
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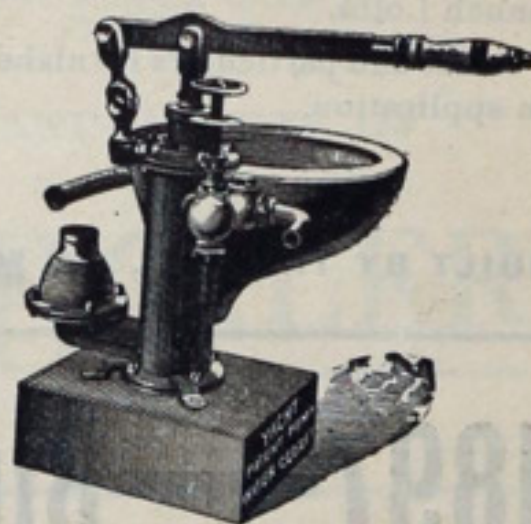
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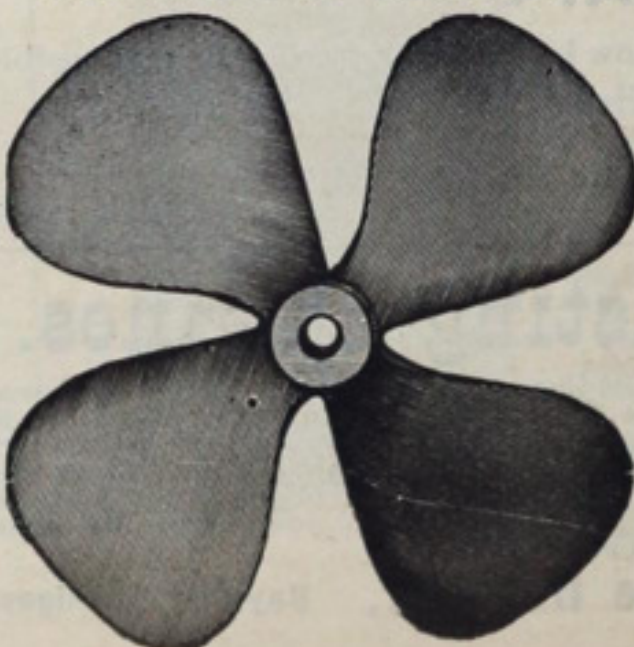
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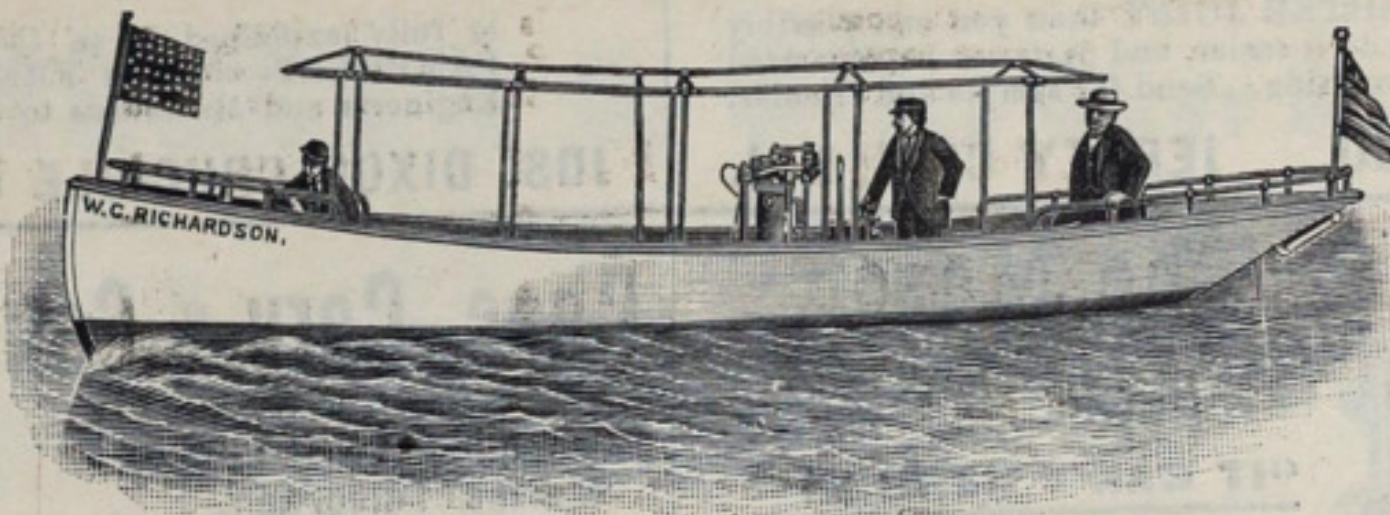
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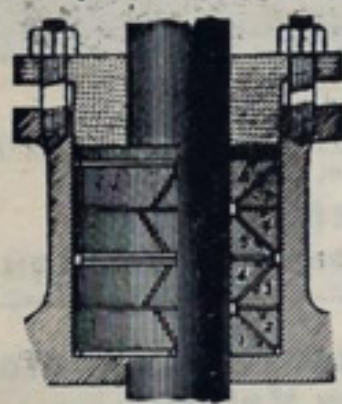
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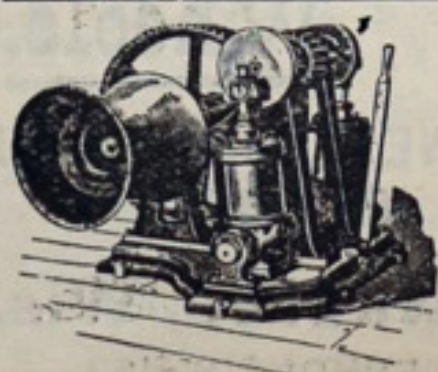
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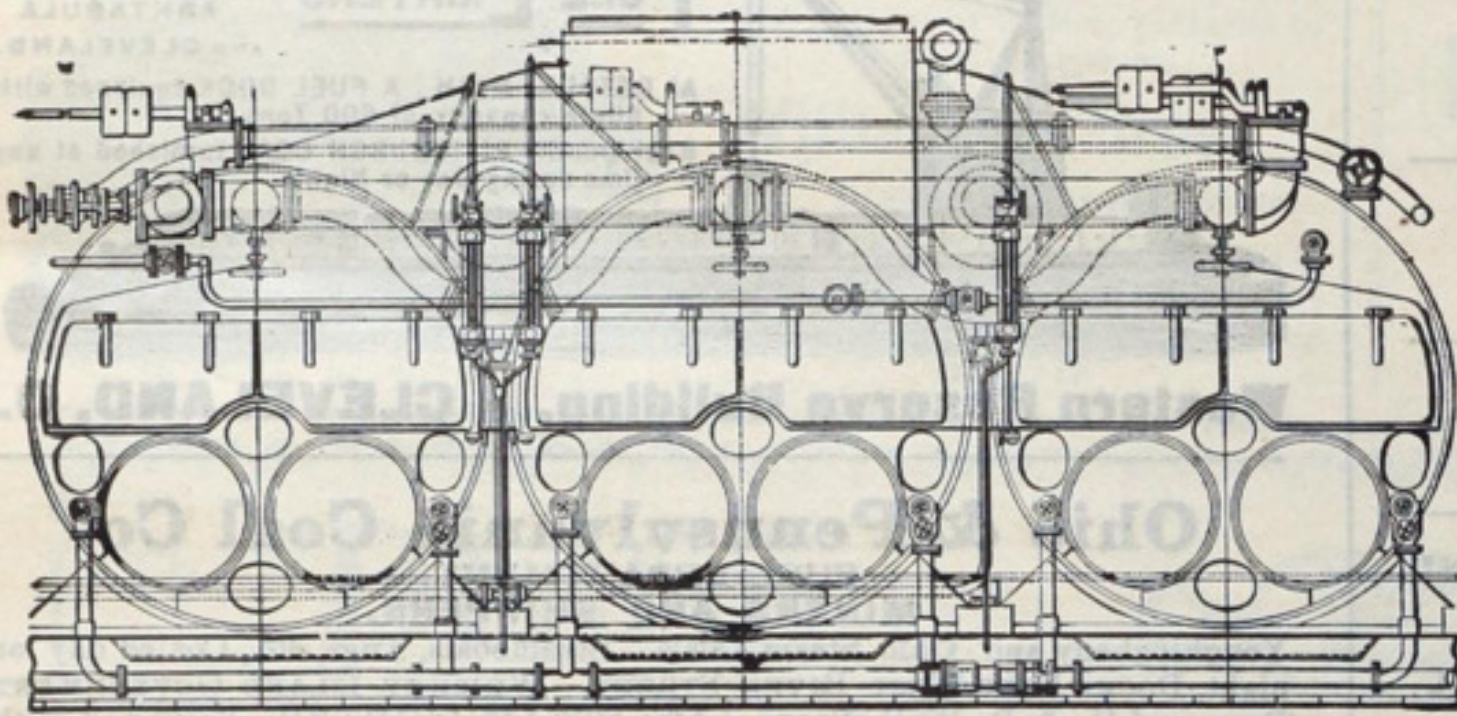
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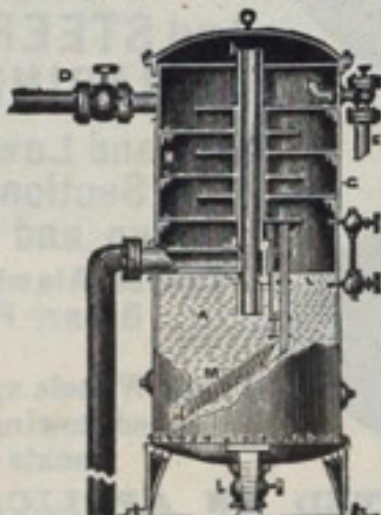
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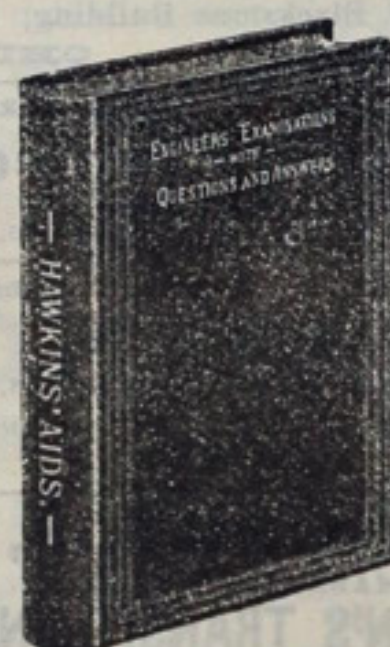
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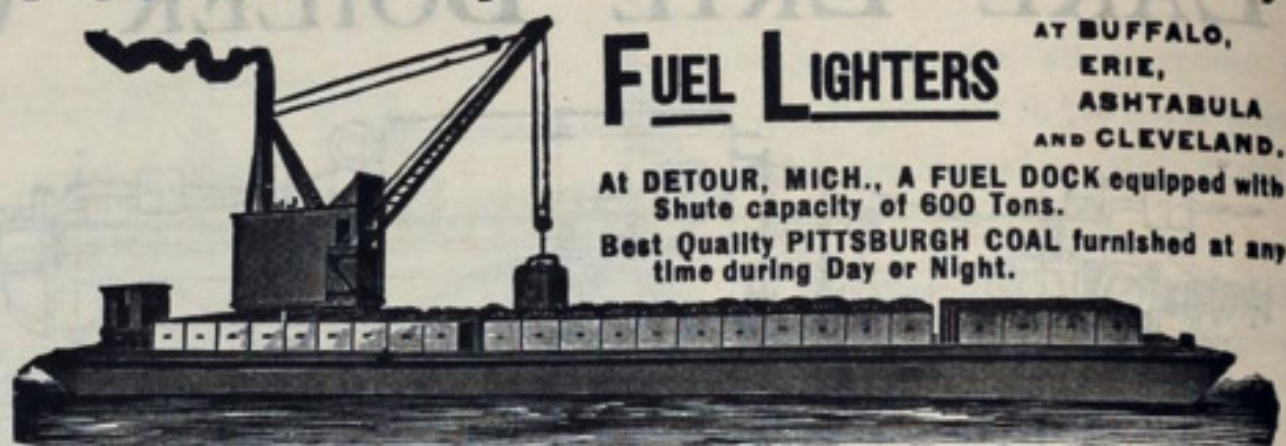
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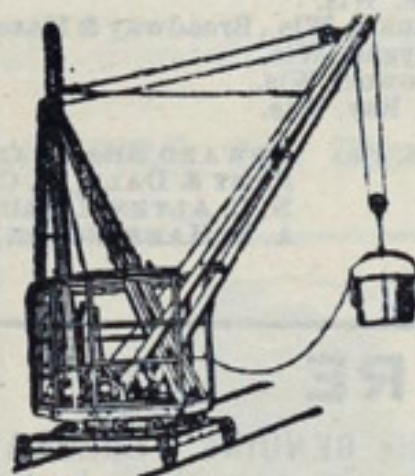
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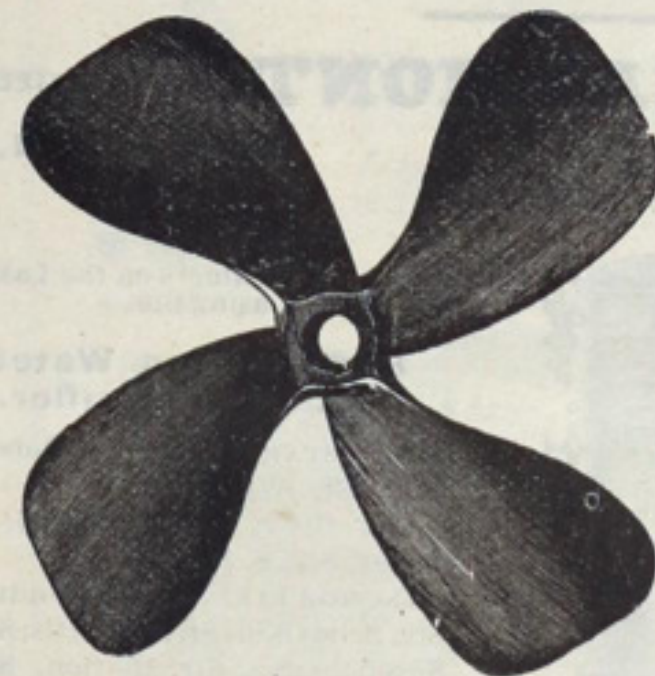
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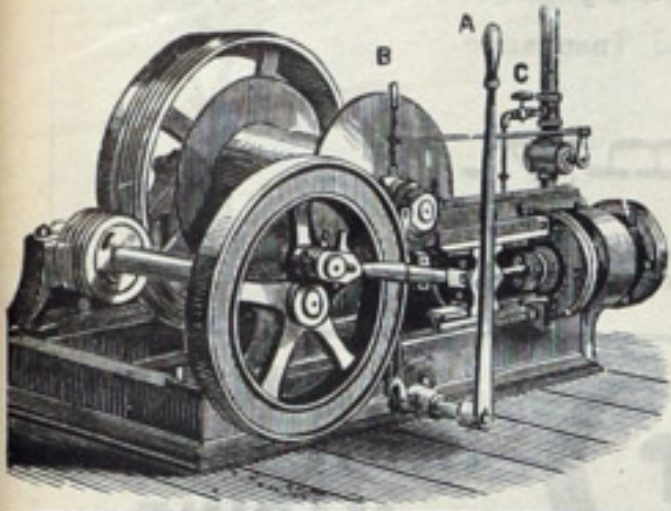
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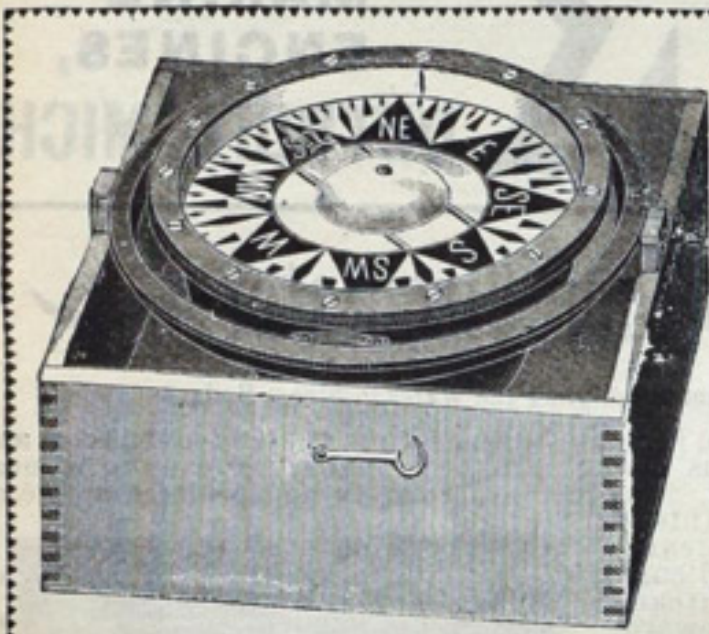
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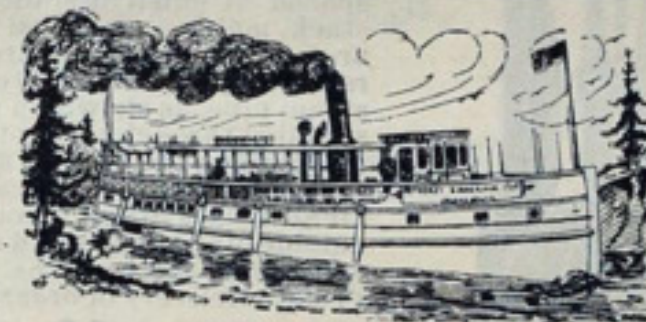
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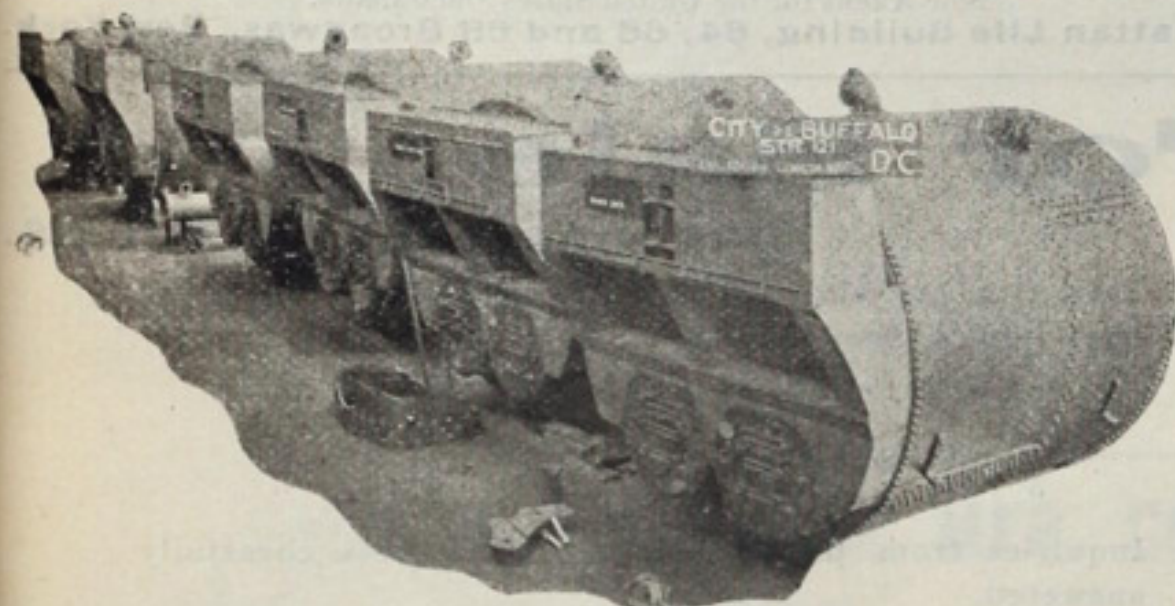
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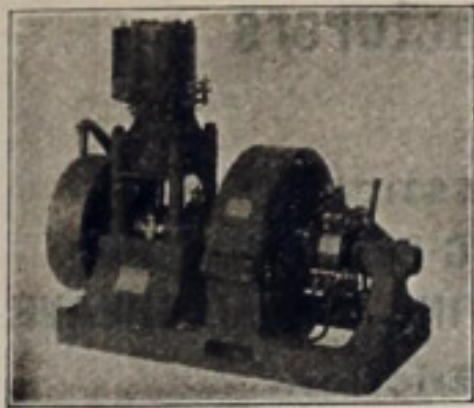
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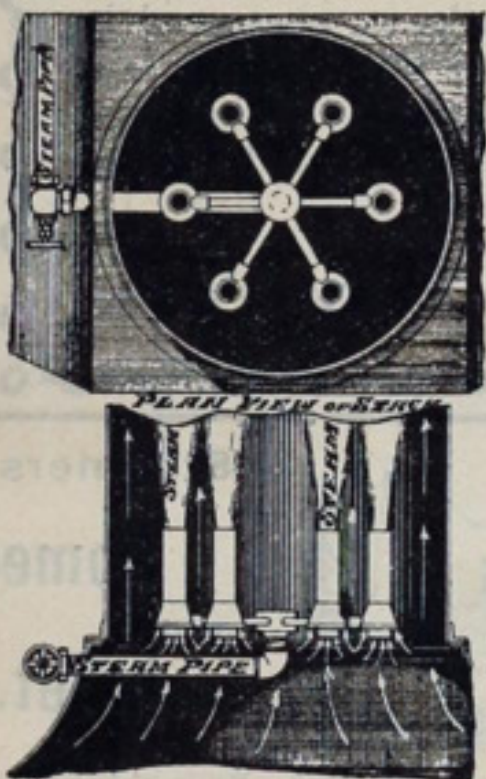
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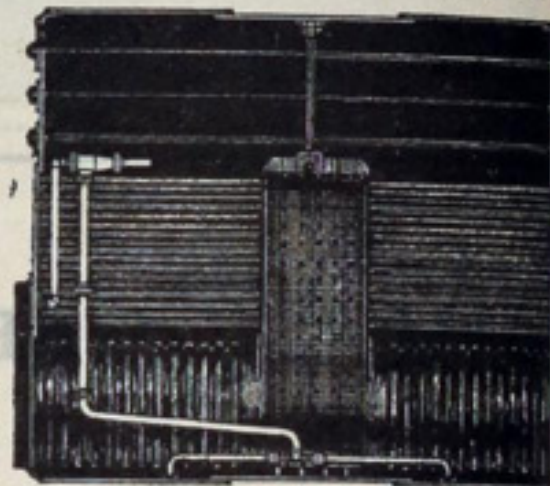
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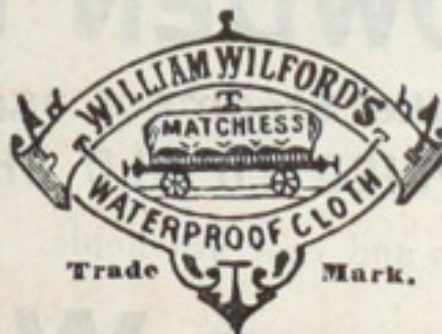
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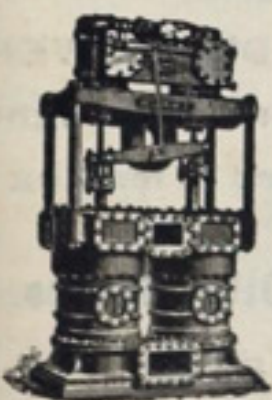
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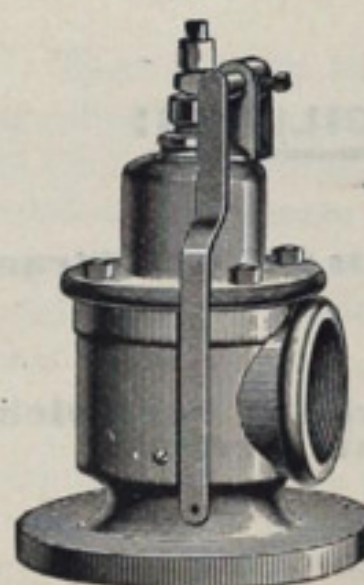
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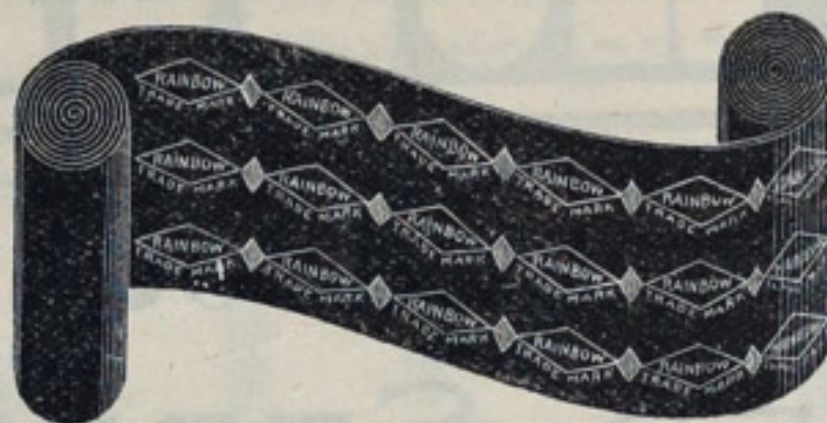
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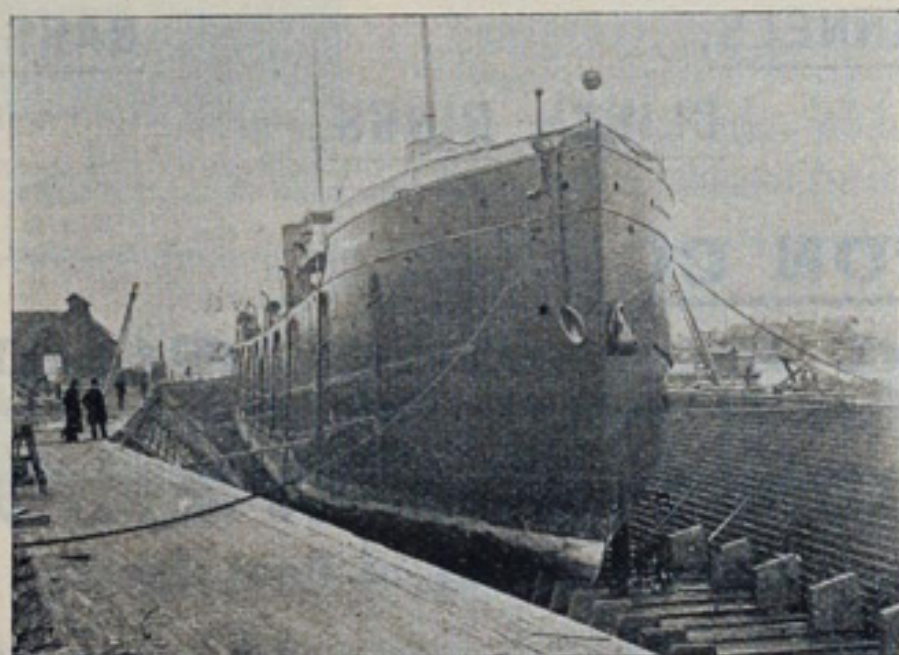
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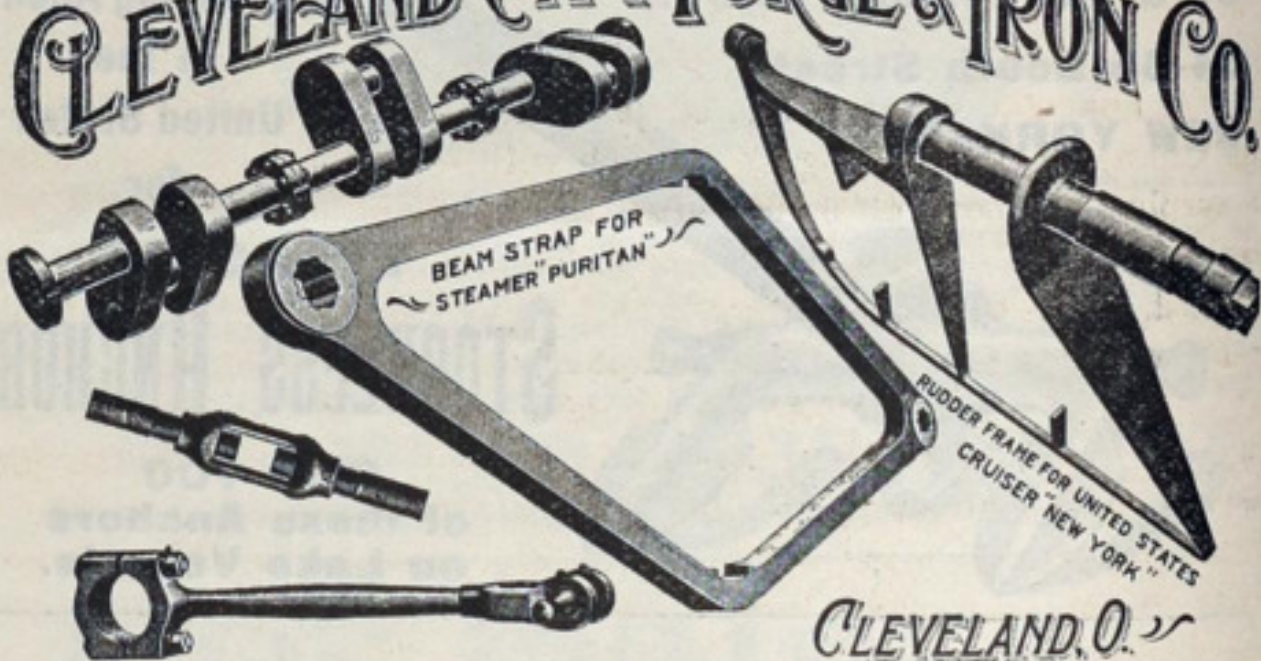
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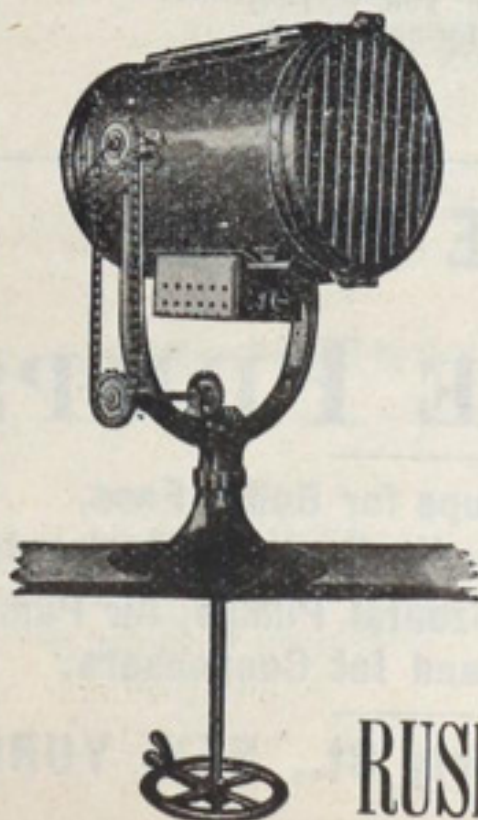
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